Obstetrics | Essay Questions

Lymph Notes

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Obstetrics:

GENERAL SCHEMES

1. ***"A quick introduction to any question is always a good idea"***

Examples:

Postpartum Hemorrhage is one of the leading causes of maternal mortality (34%) It is defined as loss of more than 500 ml Blood in VD/ 1000 ml in CS. It is sometimes referred to as placental site bleeding. Most important causes include Atony, Trauma, Retained Placenta and DIC.	**Abortion** is defined as fetal loss before viability. It complicated roughly 15% of pregnancies. Causes may be fetal or maternal. Types include threatened, incomplete, complete, missed, septic and cervical.

2. *Scheme for management in OBS*

Conservation *or* ***TOP****?*

قاعدة: الأم - المرض - الجنين.

الأم: **Distressed? In labor?**

المرض: **Severe?**

الجنين: **Mature (after 37w)? Distressed (non-reassuring heart pattern)?**

If **any** of the above is present, TOP.

If **none** are present (*Mother*: Not in labor, not distressed/*Disease*: mild/*Fetus*: preterm, not distressed), Conserve.

How to Conserve?

1. Treat the Cause (if present)
2. Prevent Complications
3. (Disease) حسن الوضع (وضع الأم و الجنين)
4. Monitor (mother, disease and fetus)

How to terminate?

VD or CS?

قاعدة:

CPD:

Maternal: Contracted Pelvis? Soft tissue obstruction[as Pl PRV, Pelvic Tumors]

Fetal: Macrosomia? MFP? Malpresentation ?

Distress:

Maternal: Shock? Exhaustion? Severe Disease + Unfavorable Cx [no time for induction] as severe PE or Eclampsia?

Fetal: Bradycardia (or other non reassuring heart pattern)? IUGR? Cord Prolapse?

Other associated Obstetric indications:

Maternal: Previous Ut Scars? Elderly Primigravida?

Fetal: After recurrent IUFD? After successful IVF (relative)

PE and Malpresentation .. Mild CPD and GDM ؛ و إذا اجتمع أكثر من مصيبة

If **any** is present **CS.** (and there is something specific in every topic)

If **none** → **VD.**

Examples:

i. Placenta previa

Conservation if:

- Mother is not in labor and not in shock.
- Disease: Bleeding is not severe.
- Fetus is preterm and not distressed.

How to conserve?

1. Aetiology? (Not present, unless she is Diabetic, TTT diabetes)
2. Prevent Complications? Bed rest, no sexual intercourse as it may provoke bleeding.
3. Maternal: Iron for anaemia due to recurrent bleeding حسن الوضع:3)
4. Monitor: Disease; Follow up US, Fetus: DFMC, US, BPPS/CTG, Doppler, Maturity (Placental Calcifications).

TOP if:

Mother is in labor, in shock. Bleeding is severe. Fetus is Mature or distressed.

1. **CS:**
    - CPD? (Type of PLPRV, if Centralis or Post. Marginal)
    - Distress? (Severe maternal Bleeding/ moderate recurrent)
    - Other indications? (write some of the reasons above)
2. **VD:**
    - No CPD? (Type: Lateral or Ant Marginal)
    - No Distress? (Mild Bleeding)
    - No other indications?

ii. PROM

Conservation if:

- Mother is not in labor, (not distressed).
- Disease: no Chorioamnionitis.
- Fetus not distress and is preterm (but take care, above **34w**)

How to conserve?

1. Aetiology? Treat vaginal infection if present, especially GBS.
2. Prevent Complications? Antibiotics (Ampicillin/Erythromycin) to prevent Chorioamnionitis
3. Fetal: CS (Lung maturation) and MgSO4 (neuroprotection) حسن الوضع
4. Monitor:
    - Disease: US for Oligohydramnious or Maybe reformation of AF and seal of defect.
    - Maternal: for signs of Chorioamnionitis [38 C + 2 of the following: Ut tenderness, offensive discharge, F/M Tachycardia]. & INV for Chorioamnionitis (elevated TLC and CRP)
    - Fetal: DFMC, US, CTG/BPPS, Doppler.

iii. DM

Conservation:

Mother not in labor and not distressed (no complication of DM), DM is controlled

Fetus not mature and not distressed and *no growth disorder.*

TOP:

Mother: in labor or distressed (bleeding from PlPRV, accidental hge), DM not controlled

Fetus: mature or distressed.

"If good glycemic control and no fetal growth disorder pregnancy is allowed to continue till week 40. If PREGESTATIONAL DM terminate as soon as 37 weeks even if controlled to avoid sudden IUFD".

Conservation:

1. Aetiology? Control DM by diet, metformin and insulin.
2. Prevent complications? (Nothing specific. If placenta previa.. if polyhydr. If pyelonephritis, manage to prevent مصايب)
3. Fetal: CS if preterm and TOP is indicated حسن الوضع
4. Monitor:
    - Disease: blood sugar, HbA1C
    - Maternal: for complication (urine culture for UTI..)
    - Fetal: Anomaly scan, US (for growth disorder), BPPS, Doppler.

Essay Questions:

1. EARLY PREGNANCY BLEEDING

Abortion

1. List causes of recurrent miscarriage in second trimester of pregnancy.

Etiology of cervical incompetence:

A. *Congenital:*
   1. Congenital isthmic weakness : due to decrease of cervical elastin content.
   2. Congenital uterine anomalies: septate and bicornuate uterus.

B. *Acquired:*
   1. Large leiomyoma esp. isthmic and cervical
   2. Cervical trauma due to:
      - Cervical laceration due to difficult instrumental delivery and shoulder dystochia .
      - Forcible excessive dilatation during D&C procedure
      - Conization of cervix in case of cervical intra-epithelium neoplasia (CIN)
      - Cervical amputation due to Manchester operation for uterine prolapse
   3. Multifactorial pregnancy:

Due to rapid progressive over-stretch of isthmic region by multiple gestation sacs

"Add uterine causes and medical as APS"

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2. Isthmic incontinence; mention the definition, aetiology, diagnosis and ttt.

Definition:

It is inability of uterine cervix to retain pregnancy during secondary trimester in absence of uterine contractions.

Aetiology:

See before

Diagnosis:

A. *During pregnancy:*

   By US:
   1. Shortened cervical canal < 2.5 cm
   2. Dilated internal os > 8 mm
   3. Funneling of the region of the isthmus "Y shaped isthmus"
   4. Protrusion of membranes in through the cervical canal

B. *In between pregnancies:*

   Passage of No.8 hegar dilator through internal os without resistance in non-pregnant women

Treatment:

A. *Medical ttt:*
   1. Physical and mental rest, avoid fatigue and exertion
   2. Progesterone support through 2nd trimester. That help in prophylaxis from both mid-trimester and preterm labor in absence of major anatomic uterine or cervical defects

B. *Surgical ttt:*

1. *Vaginal cerclage:*
   - It is the most commonly performed prophylactic surgical procedure
   - Under general local anesthesia
   - By placing a cervical suture with a synthetic mersilene tape encircling the upper cervical canal
     - **Timing of suture placing:**
       12-14 weeks "end of first trimester" after exclusion of fetal birth defects
     - **Emergency cerclage:**
       > 16^{th} weeks in cases of cervical changes predicting a higher risk for late mid-trimester abortion
     - **Timing of suture removal:**
       - If vaginal delivery cerclage suture is removed vaginally without anesthesia at 37 weeks or at onset of labor
       - If CS is planned, suture is removed vaginally at the end of procedure
     - **2 Types:**
       - **McDonald's procedure:**
         Four bites of synthesis mersilene tape or non-absorbable silk suture are taken as high as possible in cervix like a purse string . It is rapid and easy, it is the procedure of choice.
       - **Shirodkar procedure:**
         Mersilene tape or silk suture is inserted under the mucosa of vagina surrounding the cervix at the level of internal os. It is more lengthy, associated with more blood but more anatomical procedure.
         Indication: **deep cervical lacerations or failed McDonald's.**

2. *Abdominal cerclage:*
   - In rare occasions
   - Via laparotomy
   - **Indications:**
     Recurrent abortion, with failed vaginal cerclage and vaginal approach is difficult with distorted cervical anatomy.
   - The patient is delivered at 37 weeks and suture **left in situ**.

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3. Recurrent "Habitual" abortion.

Definition:

It is the term describe the occurrence of 3 successive spontaneous abortions without intervening term pregnancies, mostly occur in first trimester.

Etiology:

1. Anatomic uterine abnormalities as uterine anomalies and leiomyomata.
2. Chromosomal and genetic disorders.
3. **Endocrine disorders:**
   Hypothyroidism and uncontrolled DM
4. **Hormonal disorders:**

Luteal phase defect

5. **<u>Thrombophilias:</u>**
   Protein S and C deficiency
6. **<u>Immunologic disorders:</u>**
   As antiphospholipid syndrome

Evaluation of RPL:

1. *History:*
   Detailed history: age, parity, family consanguinity, endocrine and medical disorders, the duration of each pregnancy, the course of abortion, previous investigations including US and previous ttt.
2. *Physical examination:*
   To exclude chronic medical disorders and local uterine causes
3. *Chromosomal karyotyping:*
   For the couple to exclude inherited disorders
4. *Hysteroscopy:*
   To exclude abnormalities in endometrial cavity
5. *TVS:*
   For uterine abnormalities, leiomyomas, incompetence cervix if the patient is pregnant in second trimester
6. *Laboratory tests:*
   For thyroid functions, DM, ….
7. *Screening for antiphospholipid syndrome "APS":*
   Testing for lupus anti-coagulant "LAC", anticardiolipin antibodies and protein S, C deficiencies

Management of RPL:

Up to 30 % of cases no etiology can be identified, the ttt depends on identification of etiology:

1. *Surgical correction of anatomic disorders:*
   Removal of polys, myomas, septum
2. *Folic acid:*
   800 micrograms started before pregnancy and through first trimester
3. *Prostaglandin support:*
   In luteal phase, in first trimester and sometime recommended through third trimester as prophylaxis is against second trimester loss and PTL
4. *Control of DM and thyroid disorders.*
5. *TTT of maternal infection:*
   - Toxoplasma → Rovamycin
   - Syphilis → Penicillin
   - HSV → Acyclovir
6. *Low dose aspirin:*

7-8-9\ mg\ day through the pregnancy to protect against microthrombi and placental insufficiency

7. *Low molecular weight heparin:*

In case of thrombophilia and in antiphospholipid syndrome esp. in severe placental insufficiency, intrauterine growth retardation (IUGR), placental insufficiency and recurrent ate first trimester

IUFD

8. *Cerclage:*

In cases of isthmic incompetence.

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4. Complications of abortion.

1. *Hemorrhage:*
   - Mild vaginal bleeding: may be associated with mild anemia with no severe hazards
   - Severe vaginal bleeding: may cause hypovolemic shock with, hypotension, tachycardia, tachypnea, oliguria, the condition may be life threatening if intervention is delayed
2. *Infection "sepsis" (septic abortion):*
   - May complicate missed, incomplete, inevitability or induced abortion
   - **Risk factors:**
     a. Prolonged presence of retained POC "missed abortion"
     b. Presence of IUD at early pregnancy esp. if not removed
     c. Prior cervical gonococcal or chlamydial infection or PID
     d. Positive cultures for group beta hemolytic streptococcus infection
     e. Criminal abortion using non-properly sterilized instruments
   - **Organisms:**
     Mostly ß-haemolytic streptococci, staph, E-coli & C. welchii
   - **Symptoms and signs:**
     a. Persistent fever and malodorous vaginal discharge
     b. The uterus may be subinvoluted
     c. Lower abdominal and pelvic pain and tenderness by bimanual vaginal examination
   - **Diagnosis:**
     a. TVS/TAS: may show retained POC
     b. CBC: leucocytosis, with shift to left and sometimes toxic granules
   - **Complications:**
     a. Septic endometritis leading to intrauterine adhesions and infertility
     b. Spread of infection; salpingitis and pelvic peritonitis
     c. Septic shock → adrenal failure
     d. DIC: triggered by release of inflammatory mediators like cytokines
   - **Management of septic abortion:**
     a. Antibiotics: broad spectrum antibiotics
     b. Initiate complete evacuation of uterine contents by SE
     c. Ecbolics; ergometrine, methergine and prostaglandins ((misoprostol)) that augment expulsion of uterine contents and avoid incomplete abortion
3. *Hypofibrinogenemia and DIC:*
   Prolonged IUFD leads to release thromboplastin like substances leading to DIC, consumptive coagulopathy, hypofibrinogenemia and severe haemorrhage that may lead to maternal morbidity and mortality
4. *Complications of SE:*
   a. Uterine perforation with intraperitoneal bleeding and intestinal injury
   b. Complications related to general and regional and general anaesthesia

5. Rh sensitization:

- In -ve Rh females the risk of sensitization increases with advanced gestational age at time of abortion
- The recommended dose is single IM injection of anti-D immunoglobulin in a dose of 50 ug up to 12 weeks and 300 ug thereafter

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5. Missed abortion (aetiology, definition, diagnosis and treatment).

It describes a condition in which pregnancy has been interrupted while the uterus is still retaining all of its non-viable products of conception

Etiology:

A. <u>Fetal causes:</u>

1. Cytogenetic disorders: account for > 70 % of cases of 1st trimester pregnancy loss
2. Mendelian inheritance: autosomal or X- linked diseases
3. Fetal congenital anomalies : incompatible with life as anencephaly
4. Fetal congenital infection: as TORCH

B. <u>Maternal causes:</u>

1. Endocrinal disorders: as luteal phase defect, severe thyroid disorder, uncontrolled diabetes mellitus
2. Severe trauma: either external as car accidents
   or internal as amniocentesis and chorionic villous sampling
3. Drugs: may cause fetal death
4. Immunologic disorders: as antiphospholipid syndrome (APS)
5. Maternal infections causing acute febrile illness

"All causes of abortion in general, except uterine and cervical causes (expel not kill the baby)".

Symptoms and signs:

- No symptoms in most cases.
- Mild vaginal bleeding and /or brownish vaginal discharge.
- Regression of symptoms of early pregnancy in 1st trimester or cessation of foetal movement of 2nd trimester
- The uterus is smaller in size than the expected donation of gestation
- The cervix formed and internal os closed. absent FHS by sonicaid

US diagnosis:

- Anembryonic sac, irregular gestational sac with no embryonic echoes
- IUFD/IUED: absent FHS by sonar or sonicaid, placental separation or FHS can be elicited as always in some cases

Management:

Termination of pregnancy via induction of abortion

- Surgical evacuation: via suction or D&C evacuation in 1st trimester
- Medical evacuation: via PGL E1 oral (and/or) vaginal route in 1st and 2nd trimester
- Hysterotomy (CS < 24 weeks) in case of failed medical termination

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6. Inevitable abortion (clinical pic and ttt).

Symptoms and signs:

(bleeding → pain → uterus → cervix → internal os)

- Vaginal **bleeding** profuse due to placental separation
- sever pelvic **pain** due to continuous uterine cramps
- sings of hypovolemic shock in case of sudden sever bleeding
- the size of **uterus** is corresponding to the duration at pregnancy
- the **cervix** is opened and **internal os** dilated
- rupture of membranes rupture<24 weeks will occur in most cases

US diagnosis:

- All products of conception are related inside the uterus
- The foetus may be living or dead with some degree of placental separation
- Internal os opened, and liquor usually drained

Management:

Anti-shock measures, immediately followed by termination of pregnancy to control pain and excessive blood loss via:

- surgical evacuation < 12 weeks by suction, D and C evacuation and curettage
- medical evacuation > 12 weeks by PGL E1 and/or iv oxytocin

7. Discuss diagnosis and treatment of different type of abortion.

Point of comparison	**Threatened**	**Incomplete**	**Complete**	**Missed**	**Inevitable**	**Septic**
US diagnosis	Intact gestation sac with FHR to be elicited >7weeks gestation	Retained POC with cervix still **partially dilated**	Empty uterine cavity with no retained POC, closed internal os	See before	See before	See before
Management	1) Physical and mental rest . 2) Progesterone e support (oral, vaginal & IM) is commonly recommended although its benefit is controversial	Abortion is completed either: 1) Surgically via SE and curettage. 2) Medically using ecbolics (PGLE1, oxytocin, ergometrine)	1) Prophylactic antibiotics. 2) Prophylactic low dose anti D immunoglobuli n for non-sensitized RH-ve patient.	See before	See before	See before

Ectopic pregnancy

1. **Pathology of tubal ectopic pregnancy.**

- In tubal ectopic the pregnancy will be disturbed usually after a short period of amenorrhea, this is mainly due to:
- Tubal epithelium cannot resist trophoblastic invasion due to absent decidual layer.
- Tubal musculature is thin and cannot cope with rapid stretch by growing blastocyst.
- The endometrium shows characteristic decidualization known as **Arias stella reaction**.

Pathologic entities in tubal ectopic:

- **<u>Tubal abortion:</u>**

  Expulsion of the tubal contents within peritoneal cavity through the tubal ostium (causing severe **colicky** pain).
- **<u>Tubal rupture:</u>**

  Due to rapid tubal stretch with invasion of tubal epithelium leading to a rapidly growing haematoma causing severe **sharp stabbing** pain and considerable intraperitoneal bleeding that may lead to haemorrhagic shock.
- **<u>Chronic ectopic:</u>**

  Arrest of trophoblastic invasion into tubal epithelium with haematoma formation (blood clot). The condition tends to turn chronic with **chronic dull aching** pelvic pain .B-HCG tends to decline and may remain at low levels for long period.

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2. **Aetiology and risk factors of ectopic pregnancy.**

- In many cases of ectopic pregnancy no identifiable aetiology can be clearly elicited.
- Factors that increase the risk of tubal ectopic gestation act mainly through interference with migration of the fertilized oocyte through lumen of fallopian tube; These include:
  - Kinking of the tube by peritubal adhesions, or
  - Scaring of the lumen by infection, or reconstructive surgery, or
  - Destruction of the tubal epithelium by excision or ligation.

1. Pelvic inflammatory disease (PID): causing tubal damage and strictures.
2. Puerperal and post-abortive sepsis: causing salpingitis and peritubal adhesions.
3. Endometroisis: causing extensive peritubal adhesions.
4. Post surgical: as in reconstructive tubal surgery or tubal ligation.
5. Congenital: rarely due to congenital tubal hypoplasia or accessory tubal Ostia.
6. IUD presence: due to its effect on ovum transfer, especially in association with PID.
7. Progesterone only contraceptive pills (POPS): due to its possible effect on tubal motility.
8. Previous ectopic pregnancy: the incidence rises > 10 folds from 1% to 10-15%.
9. Assisted reproductive techniques (ART): through inducing multiple ovulation.

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3. Clinical picture/Diagnosis/TTT of undisturbed tubal ectopic pregnancy.

Clinical picture

*Symptoms: the **classic triad** of;*

1. Short delay in the menstrual cycle (usually few days to 2 or 3 weeks).
2. Vaginal bleeding (usually mild and recurrent).
3. Unilateral pelvic-abdominal pain (usually mild to moderate).

Diagnosis:

Signs:

1. **General examination:** specific signs (positive pregnancy signs as breast changes).
2. **Abdominal examination: unilateral** lower abdominal tenderness.
3. **Bimanual examination:** unilateral adnexal mass or fullness, with marked pain and tenderness on moving the cervix (jumping sign).

Investigations:

1. **Serum B-HCG: will show;**
   - Positive serum B-HCG test: levels are lower than expected for pregnancy duration.
   - **Abnormal B-HCG doubling time**: slow rise in B-HCG when repeated in 48 hours intervals, markedly below the expected ride for normal intrauterine pregnancy. This is one of the gold standard investigations suspecting an ectopic pregnancy.
2. **Ultrasound: TAS or better TVS will show;**
   - Absent intrauterine pregnancy: in-spite of B-HCG levels above the discriminatory zone (6500mlu/ml by TAS &1500mlu/ml by TVS).this the hall mark for suspecting an ectopic gestation.
   - Presence of a unilateral adnexal mass: which usually represents an organized haematoma within the tube (haematosalpinx) can sometimes be elicited.
   - Presence of an intact extrauterine pregnancy: rarely a gestation sac or an embryo, with or without pulsations, can be detected by US outside the uterus in cases of undisturbed ectopic pregnancies.
3. **Laparoscopy:**
   - Diagnostic laparoscopy is indicated whenever ectopic pregnancy is suspected and diagnosis is doubtful. this is usually occur whenever serum B-HCG is above the discriminatory zones with abnormal doubling levels together with US showing absent intrauterine pregnancy, with or without a suspicious adnexal mass.
   - In many cases laparoscopy is performed first to confirm diagnosis then proceed to operative procedures to deal with ectopic gestation as salpingostomy or salpingectomy.

Management:

Management can be medical by methotrexate or surgical via laparoscopy or laparotomy.

1. *Methotrexate (MTX): this is a **folate antagonist.***
   - **Mode of action:** rapidly attacks proliferating tissues including trophoblastic villi leading to arrest of trophoblastic proliferation.
   - **Indication:** Adnexal mass < 3.5cm and B-HCG < 6000mlu/ml in a haemodynamically stable patient, with fetus heart not pulsating yet.
   - **Doses:** single IM injection of 1 mg/kg body weight.
   - **Follow up:** with B-HCG at day 4&7 after injection to ensure regression of level.

"Methotrexate (0, 1, 4, 7):

- ***Day 0:***
  Do pre-treatment investigations (CBC, liver and functions)
- ***Day 1:***
  Start ttt
- ***On days 4, 7:***
  Measure B-hCG → If decrease is less than 15% repeat methotrexate (maximum 3 cycles)"

2. *Laparoscopic salpingostomy or salpingectomy:*
   a. **Salpingostomy:**
      - **Indication:** Ampullary tubal ectopic not suitable for MTX treatment.
      - **Technique:** A linear needle diathermy incision is performed in tubal lumen and trophoblastic villi dissected free and extruded out of the tube. The tubal incision is left for spontaneous closure with the tube preserved.

   b. **Salpingectomy**
      Indication: cases with marked tubal distention and damage (large size masses).

Follow up after management of ectopic gestation:

1. Repeat B-HCG after either medical or surgical treatment till B-HCG levels become negative to ensure complete eradication of trophoblastic villi and exclude persistant trophoblastic activity
2. Follow up for toxicity and side effects of MTX; GIT upset, nausea & vomiting
3. Contraception after ectopic pregnancy is recommended for a period of 3-6 months to minimize chances of recurrence .This is best achieved by OCP to prevent ovulation

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4. Diagnosis and management of ruptured tubal pregnancy.

Diagnosis:

Symptoms:

In addition to the above triad (see before):

- Pain become severe colicky or sharp stabbing.
- Symptoms suggestive of intra peritoneal blood loss **(irritability, drowsiness, and sometimes loss of consciousness)** relevant to the amount of blood loss.

Signs:

- **General examination:** Tachycardia, tachypnea, and low or declining blood pressure, according to the degree of intra peritoneal blood loss and/or hypovolemic shock.
- **Abdominal examination:** Abdominal guarding and rigidity, with rebound tenderness.
- **Bimanual examination:** Tenderness all over vaginal fornices and fullness in pouch of Douglas if internal hemorrhage is severe.

Investigations:

1. *Serum B-HCG:*
   See before.
2. *Ultrasound:*
   As Q3 +
   Diffuse intra peritoneal hemorrhage: in cases of ruptured ectopic and intra peritoneal bleeding free fluid will be seen in Douglas pouch.

3. *Laparoscopy:*

   See Q3.

Management:

Immediate surgical intervention to stop intra peritoneal hemorrhage is urgently indicated being performed either by laparotomy or better laparoscopy.

1. *Anti shock measures:*

In cases which are not haemodynamically stable (wide bore IV cannula, crystalloid and blood transfusion, nasal oxygen, urinary catheter.

2. *Unilateral salpingectomy:*
   - Fallopian tube is excised whenever completely damaged
   - **Technique:**

     Could be performed via laparoscopy in hemodynamically stable patients, or by laparotomy in cases with massive internal hemorrhage and deteriorating general condition and vital signs.

3. *Unilateral salpingostomy:*

   Whenever tube can be preserved technique: see Q3

Follow up after management:

As Q3 +

Anti-D immunoglobulin (RhoGAM): is administrated in small IM dose for RH –ve patient with marked intra peritoneal hemorrhage to avoid maternal sensitization.

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5. Differential diagnosis of ectopic pregnancy.

1. Spontaneous abortion: bleeding is more profuse with **declining** B-HCG levels.
2. Acute torsion or rupture ovarian cyst: unilateral pain and tenderness and **–ve** beta-hCG.
3. Appendicitis: Right unilateral tenderness on McBurney's point with **high TLC** and **–ve** beta-hCG.
4. Acute PID: lower abdominal tenderness with abdominal guarding: **Elevated** CBC, ESR, CPR and **–ve** beta-hCG.
5. Hemorrhage in corpus luteum.

Gestational trophoblastic diseases

1. Diagnosis and ttt of vesicular mole.

Clinical picture:

1. **Recurrent early pregnancy bleeding is the chief symptom**
2. **Other symptoms:**
   a. Nausea and vomiting (due to high hCG)
   b. Dark prune juice characteristic discharge
   c. Pain is minimal or absent may be due to rapid uterine distention, invasive mole, separation & hge, starting expulsion or complicated with theca lutein cysts.
3. **General examination:**
   a. Pallor if anemia is present
   b. Hypovolemic shock in case of severe bleeding
   c. Signs of pre-eclampsia may be present if bleeding reached >20 weeks
   d. Signs of complications as thyrotoxicosis
4. **Abdominal examination:**
   a. Fundal level: larger than calculated gestational age due to rapidly proliferating vesicles
   b. Uterine consistency: uterus is soft and doughy due to absent amniotic fluid
   c. Fetal parts and pulsations are absent in complete mole
5. **Vaginal examination:**
   a. Cervix is soft
   b. Enlarged ovaries with theca lutein cysts
   c. Passage of vesicles in association with bleeding is diagnostic

Investigations:

1. *U/S (gold standard for diagnosis):*
   - Complete mole: show characteristic picture of snow storm appearance due to presence of vesicles surrounded by blood in absence of fetal echoes
   - Partial mole: fetal echoes and may be pulsations detected with vesicular hydropic changes within the placenta

   N.B. Fetus + vesicles = Partial mole or Non identical twins (one is normal and one is a mole).
2. *Serum Beta- hCG:*

   Abnormally high reaching > 100.000 m IU/ml in the first 8 weeks of gestation

Diagnostic work up for mole

1. Exclude metastasis: chest X-ray, abdominal U/S, MRI brain
2. Assess risk of malignant disease: serum B-Hcg
3. Prepare for immediate termination of pregnancy: CBC, kidney, liver function tests and coagulation profile

Management:

1. **Suction evacuation:**
   - Gold standard for ttt, consists of using suction evacuation apparatus with different sized cannulas.
   - Vaginal PGL E1: to ripen the cervix for easy dilatation

And ecbolics: to minimize bleeding)
followed by gentle curettage: to ensure complete molar evacuation)

2. **<u>Hysterectomy:</u>**
   Has a limited place in management for elderly with severe bleeding and high risk of gestational trophoblastic neoplasia

Follow up after evacuation of molar pregnancy:

1. Repeated serum B-Hcg made at 48 hours post evacuation then weekly till results are for 3 successive weeks then monthly for 6 months
2. Physical examination and pelvic U/S at monthly intervals to ensure complete evacuation, normal involution of pelvic organs and disappearance of theca lutein cysts
3. Contraception for 1 year after evacuation of mole and achieved best by hormonal contraception
4. Pregnancy is allowed after 6-9 months of a negative β-hCG

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2. Choriocarcinoma.

See gynecology part.

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2. LATE PREGNANCY BLEEDING

1. Indications of CS in APH.

1. *Indications of CS in placenta previa:*
   - Cases with severe APH, regardless the type of placenta previa or gestational age.
   - Cases with recurrent moderate APH passed **37 weeks.**
   - Central or marginal placenta previa >37 weeks regardless presence or absence of bleeding.
2. *Indications of CS in placental abruption:*
   - All Cases with severe APH affecting the patient's general condition regardless the type of abruption or gestational age.
   - All Cases with severe concealed accidental hemorrhage.
3. *Indications of CS in rupture vasa previa:*

   Emergency CS is performed in all cases with rupture vasa previa to save the fetus and prevent IUFD.
4. *Other indications of CS:*

   Prior CS, cephalo-pelvic disproportion, fetal distress … etc

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2. Primigravida pregnant 34 weeks, blood pressure 140/100 has vaginal bleeding and severe abdominal pain.

A. What is the possible diagnosis?

Ante partum hemorrhage, most probably placental abruption.

B. Name the investigations to confirm your diagnosis and decide the management.

Investigations of placental abruption:

1. Of disease: US
2. Of cause: all investigations of pre-eclampsia as urine analysis,liver and kidney functions
3. Of complications: investigations of DIC (fibrinogen and D-dimer)
4. Investigations to assess for fetal well-being

1. *Ultra sound:*

   Trans abdominal sonography (TAS) is done to evaluate:
   - The placental site to exclude **placenta previa** (as here in placental abruption, placenta is normally implanted in the upper uterine segment).
   - Evidence of marginal separation at the placental edge(in revealed type), or central separation with formation of retroplacental hematoma(in concealed or mixed types)
2. *Evaluation of fetal wellbeing:*

   By doing the biophysical profile & umbilical artery Doppler flow.
   - Minor separation: normal fetus or poor BPP.
   - Major separation: marked fetal distress, fetal bradycardia, or even IUFD.
3. *Coagulation profile:*

   Should be done to confirm or exclude DIC& manage accordingly.

4. *Urine analysis:*

   To confirm preeclampsia if proteinuria is present.

Management:

Management scheme for APH

Conservative VS termination of pregnancy??

- Mother: in labor or distressed
- Disease: severe
- Fetus: mature or distressed
  - If any of the above is present → TERMINATION is the choice
  - If not CONSERVE

How to conserve?

1. Ttt of cause if present
2. Prevent complications
3. Monitor mother, disease and fetus (DFMC, BPPS, NST, Doppler US)

How to terminate? Vaginal vs CS

- Assess CPD
- Distress whether maternal(shock, exhaustion) or severe disease (unfavourable cervix and no time for induction) or fetal (IUGR, cord prolapse)
- Any obstetric indication:

  Maternal: previous CS, elderly primi

  Fetal: recurrent IUFD, after IVF (precious baby)

- If any → CS
- If not → VAGINAL DELIVERY

Management in details:

Depends on **severity** of APH and its effect on the **mother's** general condition and/or **fetal** wellbeing, the type of APH (mixed or revealed), the **duration** of pregnancy and presence or absence of **labour pains.**

1. *Active management:*

   If bleeding is severe causing maternal and/or fetal distress, or the pregnancy >37 weeks, termination should be done either via vaginal route(mild bleeding already in labor) or CS(severe life threatening bleeding).

2. *Conservative management:*

   If bleeding is not severe, the maternal condition is stable and the fetus is not in distress, pregnancy is allowed till 37 weeks or whenever a severe attack of bleeding occurs, or spontaneous labour pains start.

C. Mention five indications for conservative treatment.

1. Bleeding is mild.
2. Stable maternal general condition.
3. Pregnancy less than 37 weeks.
4. Fetal biophysical profile is good.
5. Absence of labour pains.

D. Enumerate lines of conservative management:

By allowing pregnancy to continue without intervention till best achieved fetal maturity or whenever a severe attack of bleeding occurs or spontaneous labour pains started.

3. Write a short account on the clinical picture & diagnosis of cases of ante partum hemorrhage due to placenta previa (2017).

Clinical picture:

1. *Symptoms:*
   - **No** symptoms in 1/3 of cases till onset of labour.
   - **Painless causeless** fresh vaginal bleeding in the 3rd trimester is the most common clinical presentation.
2. *Signs:*
   A. *General:*
      - In mild hemorrhage: there will not be significant signs:
      - In severe hemorrhage: patients may show signs of hemorrhagic shock; which are pallor, tachycardia, tachypnea, low blood pressure, rising pulse, oliguria & loss of consciousness.

   B. *Abdominal examination:*
      - Shows no specific signs
      - However, malpresentations especially breech and transverse lie are more frequently encountered as the low lying placenta will usually interfere with the adaptation of the presenting part through pelvic inlet.

   C. *Vaginal examination:*
      - **Contra indicated** as it may provoke placental separation with subsequent severe uncontrollable bleeding.

   D. *FHR tracing:*

      Fetal distress will be noted only in severe hemorrhage.

Diagnosis:

1. *Trans abdominal US (TAS):*
   - Is the **gold standard** in diagnosis of placenta previa and excluding other causes of ante partum hemorrhage.
   - TAS will accurately detect the **site** of placental implantation, its **degree** of encroachment on the lower uterine segment & its relation to the internal os, where;
     - Central placenta previa: partially or completely covers the internal os.
     - Marginal placenta previa: the lower placental margin reaches but doesn't cover the internal os.
     - Lateral placenta previa: the lower placental margin stops <2cm above the internal os.
2. *Trans vaginal sonography(TVS):*

   Can more accurately measure the distance between lower placental margin and the internal os thus differentiating between marginal and lateral placenta previa.
3. *MRI:*

   Has no benefit over TAS & TVS.

---

4. Discuss placenta previa.

Definition:

It's a condition that describes a placenta that is partially or totally implanted on the **lower uterine segment (LUS).**

Incidence:

- 0.5% (1/200 pregnancies).

- PL PRV is the **most common cause** of severe APH, and thus a major cause of maternal and fetal morbidity and mortality.

Risk factors:

1. Increasing maternal age: incidence >1% with maternal age >35 y.
2. Multi-parity: incidence >2% with parity 5 or more.
3. Prior CS and repeat CS.
4. Multi-fetal pregnancy: the large placenta will easily encroach on the LUS.
5. Previous placenta previa.

Types of placenta previa:

1. **Central placenta previa:**

   The most serious type, may be either:
   - Complete/total: the placenta completely covers the internal os.
   - Partial: the placenta partially covers the internal os.
2. **Marginal placenta previa:**

   The lower placental edge reaches but not covers the internal os.
3. **Lateral placenta previa (low lying placenta):**

   The lower placenta edge doesn't reach the internal os.

Mechanism of bleeding:

- Separation of the placenta due to stretch of the LUS, which may occur gradually in late 3rd trimester or suddenly and rapidly with the onset of labour.The lower the placental implantation on the LUS the more will be the severity of such bleeding.
- Bleeding is inevitable.

Symptoms:

See before.

Signs:

See before.

Diagnosis:

See before.

Management: (Check scheme)

It depends on several factors including the severity of APH& its effect on both maternal & fetal wellbeing, the type of placenta previa, the duration of pregnancy and whether labour pains have started or not.

1. *Active management:*

   Entails immediate termination of pregnancy whenever bleeding is severe or the pregnancy has passed 37 weeks or patient already in labour.
   - CS: is mandatory in cases with severe life threatening bleeding.
   - Vaginal birth: is allowed in cases with mild bleeding already in labour.
2. *Conservative management:*

   Entails allowing pregnancy to continue without intervention whenever bleeding is mild in pregnancy <37 weeks and the patient still not in labour.
3. *Indications of CS in PL PRV:*

   See before
4. *Place of vaginal delivery:*
   - Mild APH not affecting maternal or fetal condition.

- Lateral PL PRV and some cases of high marginal PL PRV>37 weeks in cases where PV examination is in favour of a safe vaginal birth(good bishop score).
- Absence of absolute indication for CS: central or low marginal PL PRV, prior CS, CPD, fetal distress, etc ...

5. *Fetal evaluation in cases with expectant management:*
   - Daily maternal perception of fetal kick counts.
   - Twice weekly FHR tracing; non stress test (NST) and cardiotocography (CTG).
   - TAS for biophysical Profile (BPP) and umbilical artery Doppler flow S/D ratio

Complications associated with placenta previa:

1. Severe APH leading to hypovolemic shock with all its complications.
2. Increased risk of CS hysterectomy whenever bleeding could not be controlled.
3. Placenta accreta with its complications and operative morbidity and mortality.
4. Post partum haemorrhage:
   Due to increased vascularity of the LUS and its defective retraction, together with possible retained placental fragments and uterine atony.
5. Fetal complications:
   Increased perinatal morbidity and mortality due to prematurity, lUGR, and massive blood loss.

---

5. Effect of placenta previa on pregnancy, labour & puerperium.

1. *Pregnancy:*
   Antepartum hemorrhage leading to anemia or shock and placental complications as placenta accrete
2. *Labor:*
   - Dysfunctional due to malpresentaions and anemia
   - 1st stage: prolonged, PROM
   - 2nd stage: prolonged, obstructed, CS
   - 3rd: postpartum hemorrhage (retained placenta, traumatic, atonic)
3. *Puerperium:*
   - Puerperal sepsis (anemiafrom recurrent bleeding, prolonged labor due to malpresentation and prolonged ROM if vaginal delivery/ if CS due to wound infection and endometritis/ postpartum hemorrhage/ placental separation site is near vagina)
   - Subinvolution (due to atony and puerperal sepsis)
   - 2ry postpartum hge due to retained placental fragments if focal accreta

---

6. Active management of APH due to placenta previa.

- See management in Q3
- Indications of CS in PL PRV in Q1

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7. Etiology of accidental hemorrhage.

1. *Preeclampsia.*
2. *Age and parity:*
   Increased risk with advanced maternal age & parity.

3. *Sudden rupture of membranes:*
   In cases with polyhydramnios.
4. *Smoking:*
   The risk significantly increases relevant to the number of cigarette packets.
5. *Thrombophilias:*
   Factor V Leiden and prothrombin gene mutations have been associated with IUGR, pre-eclampsia, IUFD and placental abruption.
6. *Traumatic abruption:*
   May occur due to external trauma as car accidents, fall from height or direct trauma to the abdomen.

---

8. Complications of accidental hemorrhage.

1. Placental separation and retro-placental hematoma formation.
2. Couvelair's uterus:

Concealed hemorrhage leads to entrapment of blood which dissects its way within the myometrium which may predispose to atonic post-partum hemorrhage.

3. Hemorrhagic shock with hypotension and acute renal tubular necrosis.
4. Consumption coagulopathy with hypo-fibrinogenemia and DIC:

Due to thromboplastin release from placental tissue and exhaustion of fibrinogen in retroplacental clot formation.

5. Fetal complications:

Fetal distress, IUFD and preterm delivery with high neonatal morbidity and mortality.

---

9. Causes and complications of accidental hemorrhage.

For causes see Q6 and for complications see Q7

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10. Management of placental abruption.

Diagnosis:

See Q2. b.

Management:

See Q2

Indications of CS in placental abruption:

See Q1

Indications of vaginal delivery:

1. Cases with mild bleeding, minimal separation, good fetal condition > 37 weeks with no other indications for CS.
2. Good Bishop Score.

---

3. MEDICAL DISORDERS

1. Causes of nausea and vomiting in pregnancy.

1. *Hyperemesis gravidarum*
2. *Liver affection:*
   a. Preeclampsia
   b. Cholestasis
   c. Acute fatty liver
   d. Hepatitis
3. *Causes of acute abdomen:*
   a. OBGYN:
      - Torsion of ovarian cyst
      - Rupture uterus
      - Red degeneration of fibroid
      - Accidental hge
      - Acute polyhydramnios
      - Chorioamnionitis
   b. Non OBGYN
      - Surgical → appendicitis, stones
      - Medical → SCA, FMF

---

2. Hyperemesis gravidarum: pathogenesis, clinical picture, treatment.

- **Pathogenesis:**
  See before.
- **Clinical picture:**
  - Symptoms: Intractable vomiting with significant weight loss in 1st trimester
  - Signs: Signs of dehydration (dry coated tongue and decreased skin turgor).
- **Treatment:**
  - Mild cases: Pyridoxine (Vitamin B_6), strong anti-emetics
  - Severe cases: Hospitalization, IV fluids and NPO is mandatory
    - IV normal saline and lactated ringer's solution to correct dehydration and electrolyte imbalance and avoid pre-renal failure.
    - Liver supports and correct ketosis and ketonuria.
    - Thiamine (Vitamin B1) diluted in saline infusion.
    - 2nd line anti-emetic drugs
      - Metoclopramide: IM or suppository (Dopamine receptor blocker)
      - Meclozine: IM or suppository (Histamine receptor blocker)
      - Ondansetron: IM or IV infusion (Serotonin receptor blocker)
    - The few patients who don't respond to the above mentioned therapy require nasogastric feeding or total parentral nutrition (TPN)

---

3. **Anemia during pregnancy: Definition and management during pregnancy, labor and puerperium.**
   - **Definition:**
     - WHO def.: A Hb concentration of < 11gm/dl and a hematocrit of <10.5 at any trimester of pregnancy
     - CDC def. (center for disease control): cut off point 10.5gm/dl during 2nd trimester
   - **Clinical picture:** "من الأطفال"
     Pallor, tachycardia, dyspnea, easy fatigability, failure to thrive
   - **Management:**
     - **<u>During pregnancy</u>**
       - Prevention: iron supplement using oral preparations, proper diet rich in iron and vitamin C.
       - Treatment:
         - Oral Iron therapy: Hb rises from 0.3 to 1g per week
         - Parenteral Iron therapy: for severe anemia with poor response or poor compliance to oral therapy
         - Blood transfusion: very rarely required in patients with severe anemia beyond 36 weeks therapy or to compensate blood loss due to antepartum Hge
     - **<u>During labor</u>**
       - 1st stage: oxygen if dyspnea develops, antibiotic prophylaxis.
       - 2nd stage: shortened to avoid maternal exhaustion
       - 3rd stage: active management except in very severe anemia for fear of cardiac failure and any PP Hge must be treated as these patients tolerate bleeding very poorly.
     - **<u>During puerperium</u>**
       - Rest, iron and folate therapy for at least 3 months
       - Any infection should be treated
   - **Complications of anemia during pregnancy:**
     - **<u>Maternal:</u>**
       - Mild anemia: No effect on pregnancy and labor, low maternal iron stores
       - Moderate anemia: weakness, fatigue and lack of energy
       - Severe anemia: increased incidence of dysfunctional labor and sepsis
     - **<u>Fetal:</u>**
       - Decreased iron stores due to depletion of maternal stores
       - High risk for an adverse perinatal outcome (PTL, SGA, inc. perinatal mortality)

---

4. **Iron requirement during pregnancy and prevalence of anemia in pregnancy.**

<u>Nearly 1000 mg:</u>

- Basal Iron requirements: 250mg
- Expansion of red cell mass: 450mg
- For transfer of the fetus: 250mg
- For the placenta: 50mg

"Because Iron absorption from food is only 10% it can't supply all iron needs, so iron **supplementation is a necessary".**

Prevalence:

It's the commonest medical disorder in pregnancy.

About **50%** of pregnant women will suffer some degree of anemia in pregnancy.

---

5. Effect of DM on pregnancy.

1. Occurrence of GDM in high risk cases
2. Difficult glycemic control due to anti-insulin effect of placental hormones
3. Increased incidence of CS, instrumental deliveries and maternal birth canal injuries
4. Higher incidence of congenital anomalies especially VSD, NTD and caudal regression
5. Fetal macrosomia (>4.5kg) where maternal hypoglycemia leads to fetal hyperglycemia and hyperinsulinemia resulting in enhanced glycogen synthesis, lipogenesis and fetal ptn synthesis
6. Fetal birth injuries and shoulder dystocia due to macrosomia
7. IUFD in cases with prolonged poor glycemic control and ketoacidosis.

---

6. Give an account on the management of DM during pregnancy (2017).

Management of DM includes:

1. Preconceptional care: avoid pregnancy if Hb_{A1C} is above 10
2. Ante partum glycemic control.
3. Ante partum fetal assessment.
4. Timing delivery in diabetic pregnancy.
5. Indications of CS.

1. *Preconceptional care:*
   Avoid pregnancy if Hb_{A1C} is above 10
2. *Ante partum glycemic control:*
   - **Diet control:**
     Supplying 30 Kcal/kg/day offers good control in 80% of patients with GDM.
   - **Home blood glucose monitoring:**
     4 Times daily checks to maintain:
     - Fasting blood sugar < 90 mg/dl and
     - 1-hour after meal < 140 mg/dl.
   - **Oral hypoglycemic drugs (OHD):**
     - They were formerly contra indicated because of concerns of crossing the placenta and causing fetal and neonatal hypoglycemia**.**
     - Recently Metformin has been recommended for GDM not responding to diet control.
   - **Insulin therapy:**
     - Insulin doesn't cross the placenta because of its large molecular weight and can be safely used in cases with type 1&2 DM and 15% of cases with GDM (failed diet and/or OHD)
     - Titrating insulin doses: total daily insulin units=body weight in Kg. Doses are divided into 2/3 in the morning and 1/3 at the evening.

- **Glycosylated hemoglobin (HbA_{1c}):**

  Measures glucose bound to RBCs. It reflects glycemic control over the life span of RBCs (60-120 days).

3. *Ante partum fetal assessment:*
   - **Screening of fetal anomalies:**
     - Hyperglycemia early in pregnancy in cases with overt DM increases the risk of development of fetal congenital anomalies especially neural tube defects, caudal regression syndrome& cardiac anomalies.
     - Hyperglycemia in the 2nd half of pregnancy in cases with GDM increases the risk of fetal macrosomia and polyhydramnios.
     - ❖ Triple marker test at 14-16 weeks: to assess for neural tube defects.
     - ❖ US fetal anomaly-scan at 20-24 weeks to assess for structural anomalies.
   - **Monthly US assessment of fetal growth disorders:**
     - Macrosomia: is commonly associated with uncontrolled GDM or overt DM.
     - IUGR: may be associated with long standing overt DM with vasculopathy.
   - **Fetal surveillance:**
     - Non stress test (NST) and amniotic fluid index(AFI) every 2 weeks after the 32 weeks gestation for cases showing growth disorders(macrosomia or IUGR) and those with poor glycemic control.
     - Biophysical profile (BPP): performed at monthly US scan.
4. *Timing delivery in diabetic pregnancy:*
   - In cases with good glycemic control and no fetal growth disorders, pregnancy can be prolonged to 40 weeks and vaginal delivery may be attempted.
   - In cases with poor glycemic control and/or growth disorders, pregnancy should be terminated whenever fetal lung maturity is ensured (>37 weeks) or whenever fetal surveillance points to increased risk of IUFD.
   - Corticosteroids given at 28-32 weeks to enhance lung maturity, (IM Dexamethasone 24mg/24 hours on 2-3 divided doses).
5. *Indications for CS:*
   1. Fetal macrosomia (>4.5kg): for prevention of obstructed labour, shoulder dystocia & fetal birth injuries.
   2. IUGR: for prevention of intra partum hypoxia, cerebral palsy & still birth.

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7. Risk factors for DVT in pregnancy.

1. Maternal age >35 years
2. Pre-pregnancy weight>80 kg (obesity)
3. Previous DVT (hypercoagulability)
4. Pre-existing thrombophilia (hypercoagulability)
5. Severe varicose veins (stasis + vasculitis)
6. Prolonged bed rest (stasis)
7. Multifetal pregnancy (stasis)
8. Severe preeclampsia (hemoconcentration)
9. Caesarian section delivery (pelvic surgery)
10. Sepsis especially pelvic (hypercoagulability + stasis + vasculitis)

8. An Rh –ve mother married to an Rh +ve father.

A. Name 2 precautions to prevent erythroblastosis fetalis.

B. Prophylaxis against maternal RH sensitization and erythroblastosis fetalis (2017).

A. The mother should never receive RH +ve blood transfusion

B. Anti-D immunoglobulins should be given to her in the following conditions:

- After delivery of RH +ve baby to destroy fetal RBCs before initiation of maternal immune response
- At time of abortion, disturbance of ectopic pregnancy, antepartum Hge, amniocentesis or version
- Recently, Anti-D immunoglobulins IM are given at 28 weeks of pregnancy is recommended to prevent sensitization during pregnancy

"Doses are important"

---

9. Name 4 investigations in cord blood after delivery.

1. For Rh grouping
2. To assess hemoglobin level to detect anemia (normal 18 g%)
3. To assess serum bilirubin to detect jaundice (normal 2 mg%)
4. Direct Comb's test: detect antibodies absorbed to RBCs (sensitization).

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10. Causes of albuminuria during pregnancy (Sep. 2001)

1. Preeclampsia
2. Contamination of urine sample with vaginal discharge
3. Urinary tract infection
4. Renal diseases
5. Secondary to diabetes mellitus.

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11. Diagnosis, complication, treatment of preeclampsia (June 2000)

Diagnosis:

Risk factors:

- Primiparas: PE occurs 8 times more frequently in the first than in subsequent pregnancies.
- Multifetal pregnancy (MFP) and hydatidiform mole {HDFM) with abnormal placentation
- Extremes of age and diabetes mellitus (DM) with associated vasculopathy
- Chronic hypertension (C-HTN) and chronic renal disease with poor organ perfusion.
- Family history of PE or Eclampsia
- Systemic Lupus Erythematosus {SLE) due to small vessel disease

Diagnosis of mild PE:

a. Symptoms & signs:

- No significant symptoms apart from mild headaches and sensation of bloating.
- No significant signs apart from excessive weight due to fluid retention
- Edema is usually present and more significant in the LL
- Hypertension: persistent elevation of BP 140/90 or more but< 160/110

b. Laboratory tests:

- Proteinuria: > 300 mg/24-h urine sample or dip stick test 1-2 +
- Mild elevation in HB and hematocrit levels due to Hemoconcentration
- Mild elevation in kidney functions as; BUN, serum uric acid and serum creatinine.

Diagnosis of severe PE:

- Sustained BP: 160/110 or more
- Proteinuria: > 5 g on a 24-h urine collection or dipstick test 3-4+.
- Maternal symptoms: persistent headache, blurred vision, epigastric pain.
- Laboratory tests: Low platelets (< 100.0000 ml), elevated liver enzymes (ALT & AST).
- Oliguria: < 750 ml/24-h.
- Evidenced by asymmetrical IUGR denoting placental insufficiency.

Complications: "better classify into maternal and fetal"

1. Severe maternal symptoms as headache and visual symptoms
2. More generalized vasospasm with multi-system organ affection
3. Marked Hemoconcentration with increased incidence of DIC and thrombosis
4. HELLP syndrome
5. Progression to Eclampsia (PE+ seizures)
6. DIC, placental abruption, IUFD, hepatic rupture, and ascites.
7. PTL, IUGR

Treatment:

a. Mild PE:

- The only definitive cure for PE is termination of pregnancy and removal of all placental tissue. However, in mild PE termination of pregnancy is based on gestational age:
- **Conservative management** for prolongation of pregnancy if < 36 weeks gestation:
  - Careful follow up for BP, proteinuria, laboratory tests, and symptoms of severe PE.
  - Hospitalization may be necessary for closer follow up - Antepartum fetal surveillance (NST, Umbilical artery Doppler & Biophysical profile).
  - No antihypertensive drugs or MgSO4. are needed.
- **Active management** by termination of pregnancy:
  - PE first discovered > 36 weeks gestation.
  - Cases under conservative management and successfully passed > 36 weeks
  - Progression into severe PE or non-reassuring fetal surveillance
- **Termination of pregnancy** can be achieved by either:
  - Induction of labour by IV oxytocin in cases with favorable Bishop score (> 7)
    - **1st stage:**
      Continuous maternal and fetal monitoring (CTG)
    - **2nd stage:**
      Shorten (forceps or ventose)
    - **3rd stage:**
      Guard against postpartum hge (atonic and DIC) and eclampsia
  - Elective CS in cases which meet obstetric indications for CS

b. Severe PE:

Immediate hospitalization is mandatory with aggressive management aiming for:

- Immediate termination of pregnancy irrespective of gestational age, via;
  - Attempt at vaginal delivery if maternal and fetal conditions are stable
  - CS only for obstetric indications including unfavorable bishop score
- Prevention of convulsions: IV MgSO4 5-g loading dose then IV infusion 2-g/h
- Control of BP: IV Hydralazine and/or Labetalol to lower diastolic BP < 100 mm Hg.

N.B.

- PE complicated by Accidental Hge in 10%
- Accidental Hge complucated by DIC in 10%
- 50% of DIC are due to accidental Hge
- 50% of accidental hge are due to PE

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12. Diagnosis, treatment of eclampsia (Sep. 2000)

Diagnosis:

Clinical picture:

- Symptoms of mild or severe PE, usually with marked generalized edema
- **Signs:**
  - Sudden unexplained **tonic-clonic seizures** that may persist for 1-2 minutes.
  - During the fit the tongue may be bitten and cyanosis may occur.
  - Seizures are followed by a short period of coma followed by recovery
  - Convulsions may recur without preceding signs or symptoms.
- **Laboratory tests:**
  - Proteinuria: > 300 mg/24-h urine sample or dip stick test 1-2 +
  - Mild elevation in HB and hematocrit levels due to Hemoconcentration
  - Mild elevation in kidney functions as; BUN, serum uric acid and serum creatinine.
  - Severe PE:
    - Sustained BP: 160/110 or more
    - Proteinuria: > 5 g on a 24-h urine collection or dipstick test 3-4+.
    - Laboratory tests: Low platelets (< 100.0000 ml), elevated liver enzymes (ALT & AST).
    - Oliguria: < 750 ml/24-h.
    - Fetal jeopardy: evidenced by asymmetrical IUGR denoting placental insufficiency.

Management:

1. Protect the mothers tongue and ensure airway.
2. Stop convulsions:
   - $MgSO_4$ bolus IV dose 5 g followed by miniatous with IV infusion 2g/hr.
   - Diazepam in absence of $MgSO_4$.
3. Lower diastolic BP < 100 with IV hydralazine and or labetalol.
4. Prompt delivery irrespective gestational age with either induction of labour or CS according to obstetric indications and fetal condition.
5. Postpartum care: MgS04 should be continued 1st 24 hours postpartum to guard against post-partum eclampsia.

---

13. Treatment of severe PE (June 2002, 2012, 2014)

1. Immediate hospitalization is mandatory with aggressive management aiming for:
   - Immediate termination of pregnancy irrespective of gestational age, via:
     - Attempt at vaginal delivery if maternal and fetal conditions are stable
     - CS only for obstetric indications including unfavorable bishop score
   - Prevention of convulsions: IV MgSO4 5-g loading dose then IV infusion 2-g/h
   - Control of BP: IV Hydralazine and/or Labetalol to lower diastolic BP < 100 mmHg.
2. Management of HELLP syndrome:
   Immediate pregnancy termination irrespective of gestational age

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14. Management of antepartum eclampsia (june 2003, 2012)

As mentioned above

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15. Criteria suggesting for PE (june 2005, sep. 2008)

- Sustained BP elevation: 140/90 mm Hg or more on 2 occasions 6 hours apart.
- Proteinuria: > 300 mg on a 24-hour urine collection, or 1-2 + on dipstick test.
- + Criteria of severe PE.

---

16. Criteria of severity of PE (june 2011)

1. Sustained BP: 160/110 or more
2. Proteinuria: > 5 g on a 24-h urine collection or dipstick test 3-4+.
3. Maternal symptoms: persistent headache, blurred vision, epigastric pain.
4. Laboratory tests: Low platelets (< 100.0000 ml), elevated liver enzymes (ALT & AST).
5. Oliguria: < 750 ml/24-h.
6. Fetal jeopardy: evidenced by asymmetrical IUGR denoting placental insufficiency.

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17. Complication of PE (jun. 2013/sep. 2011)

As mentioned above

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18. 22-year-old primigravida pregnant 34 weeks coming to antenatal clinic with BP 140/90 (Aug. 2009)

A. Name five possible causes of this condition.

1. Gestational hypertension.
2. PE
3. Eclampsia
4. Chronic hypertension
5. Chronic hypertension with superimposed PE.

B. Name 7 risk factors for the occurrence of this condition.

1. Primiparas: PE occurs 8 times more frequently in the first than in subsequent pregnancies.
2. Multifetal pregnancy (MFP) and hydatidiform mole {HDFM) with abnormal placentation
3. Extremes of age.
4. Diabetes mellitus (DM) with associated vasculopathy

5. Chronic hypertension (C-HTN) and chronic renal disease with poor organ perfusion.
6. Family history of PE or Eclampsia
7. Systemic Lupus Erythematosus {SLE) due to small vessel disease.

C. Named 3 signs for diagnosis:

1. Edema is usually present and more significant in the LL
2. Hypertension: persistent elevation of BP 140/90 more on 2 occasions 6 hours apart.
3. Proteinuria: > 300 mg/24-h urine sample or dip stick test 1-2 +.

D. Name 3 fetal complication:

1. PTL
2. IUGR
3. IUGD

E. What is the action of $MgSO_4$ in the treatment of eclamptic fit and mention 3 precautions before giving the next dose:

Action:

1. Anticonvulsant action through inhibition of neuromuscular transmission
2. CNS depressant.

Precautions:

1. Normal urine output (> 30 ml/hr)
2. Normal respiratory rate (> 16/min)
3. Normal patellar (knee jerk) reflex

Mnemonic for management of heart labor during labor (Page 90 department book):

As dr Ismail's scheme in Pediatrics "Rest Rest Restriction and Ds"

1. ***Rest*** in semi-sitting potision
2. ***Rest*** of lungs, O_2.
3. ***Rest****riction* of Pain (epidural), Straining, PV examinations (to lower incidence of infective endocarditis), of Labour (outlet forceps or if Maternal/fetas distress CS)
4. ***Ds*** Digoxin, Diuretics may be given, Delay ROM (to prevent inf endocarditis)

1. *Give* prophylaxis against inf endocarditis
2. *Don't give* Ergometrine

4. NORMAL & ABNORMAL LABOR

Anatomy of female pelvis & Normal labor

1. **Clinical importance of level of ischial spine (jun. 2012)**
    1. It is the level of **the levator ani**, which is attached to the ischial spines.
    2. The **external os** of the cervix & **the vaginal vault** lie at this level.
    3. It is the level of the **plane of the least pelvic dimensions.**
    4. The **obstetric axis changes its direction** at this level.
    5. The head is considered **engaged** if the vault is felt at or below this level.
    6. **Forceps** should not be applied when the fetal head is above this level.
    7. **Anesthetic agent for pudendal nerve block** is injected at this level.

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2. Obstetric pelvic outlet, boundaries and diameters (1999, jun. 2013)

1. Anatomical outlet:

Lozenge shaped area made of 2 triangles in 2 planes:

- The anterior sagittal plane
- The posterior sagittal plane

Boundaries:

- Anteriorly:
  The lower border of the SP.
- Posteriorly:
  The tip of the coccyx.
- Laterally:

The pubic arch, ischial tuberosities and the sacrotuberous ligament.

2. Obstetric outlet:

Wedge-shaped segment of the pelvis.

Boundaries:

- Above:
  Plane of the least pelvic dimensions.
- Below:
  The anatomical outlet.
- Posteriorly:
  The coccyx.
- Lateral walls:
  Made up of the part of ischium between the ischial spine and tuberosity
- No anterior wall.

Diameters:

a. Transverse diameters:
   - Bituberous diameter: 11 cm, Between the 2 ischial tuberosities.
   - Bispinous diameter: 10 cm, Between the tip of the 2 ischial spines.

b. Anteroposterior diameters (APD):
   - Anatomical APD: 11 cm, From the lower border of the symphysis pubis to the tip of the coccyx.
   - Obstetric APD: 13 cm, From the lower border of the SP to the tip of the sacrum.

c. Longitudinal diameters:
   - Posterior sagittal diameter: 7-10 cm, from the tip of the sacrum to the center of the bituberous diameter.
   - Anterior sagittal diameter: 6-7 cm, from the lower border of the symphysis pubis to the center of the bituberous diameter.

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3. How many fontanels present in fetal head? What is their clinical importance? (Sep. 2009)

- They are 6 in number present at points of crossing of sutures.
- 4 fontanels lie at the anterior and posterior ends of the temporal suture on either side. They are of no clinical importance.
- The other 2 fontanels "anterior" and "posterior" have some clinical importance in:
  1. Diagnosis of vertex presentation.
  2. Position of the occiput.
  3. Degree of flexion of the fetal head

Anterior fontanel (bregma)	***Posterior fontanel (lambda)***
Large, lozenge shaped	Small, triangular
Soft membranous floor	Hard, bony floor
Meeting of 4 sutures: 2 coronal, frontal and sagittal.	Meeting of 3 sutures: sagittal and 2 lambdoid.
Disappears 1.5 years after birth.	Completely ossified at full term
The surrounding bone doesn't override with molding as they are widely separated.	With molding, one parietal bone overrides the otherand both over-ride the occipital bone.

---

4. Compare between anterior and posterior fontanels. (jun. 2014)

As before.

---

5. Longitudinal diameters of fetal skull. (sep. 2011, 2013)

1. *Suboccipito-bregmatic (SOB) "9.5 cm":*

   From below the occipital protuberance to the center of the anterior fontanel (bregma). The engaging diameter when the head is fully flexed
2. *Suboccipito-frontal (SOF) "10 cm":*

   From below the occipital protuberance to the anterior end of the anterior fontanel. It is the diameter that extends the vulva in vaginal delivery.
3. *Occipito-frontal (OF) "11.5 cm":*

   From the occipital protuberance to the root of the nose. The engaging diameter when the head is deflexed (occipito-posterior).
4. *Submento-bregmatic {SMB) "9.5 cm":*

   From the junction of the chin and neck to the center of the bregma. The engaging diameter

when the head is fully extended (Face).

5. *Submento-vertical (SMV) "11.5 cm":*

   From the junction of the chin and neck to the vertical point (a point on the sagittal suture midway between the anterior and posterior fontanels)

6. *Mento-vertical (MV) "13.5 cm":*

   From the tip of the chin to the vertical point. The engaging diameter when the head is partially extended (Brow). Larger than any pelvic diameter.

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6. Asynclitism (jun. 2003, sep. 2014)

- One parietal bone is at a lower level than the other due to lateral flexion of the head.
- Asynclitism brings shorter diameter to enter the pelvis (Supraparietal subparietal 9 cm instead of biparietal 9.5 cm)
- Slight degree of asynclitism occurs in normal labour
  - Anterior parietal bone presentation.
  - Posterior parietal bone presentation.

---

7. Engagement of fetal head (jun, 2006)

- It Is the passage of the widest transverse diameter of the presenting part through the plane of the pelvic inlet (the biparietal in case of the head, the bitrochanteric in case of breech).
- The engaged head can't be grasped by the first pelvic grip but it can be palpated by the 2nd pelvic grip. Vaginally, the vertex is felt at or below the level of the ischial spines.
- In primigravida's, engagement occurs in the last 3 or 4 weeks of pregnancy due to the tonicity of abdominal and uterine muscles while in multiparas, the head commonly engages at the onset of labour or at the beginning of the 2nd stage.

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8. Fetal presentation (sep. 2009)

It is that part of the fetus related to the pelvic brim and first felt by vaginal examination. It may be:

1. *Cephalic (96%):*

   Vertex when the head is flexed, face when extended and brow when it is midway between flexion and extension. Cephalic presentation is much more common as the fetus is adapted to the pyriform-shaped uterus (with the larger breech in the wide fundus).

2. *Breech (3.5%):*

   The buttocks with or without the limbs form the presenting part.

3. *Shoulder (0.5%):*

   The scapula with or without the arms form the presenting part.

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9. Causes of non-engagement (jun. 1999)

A. *Maternal causes:*

   1. Contracted pelvis
   2. Pelvic tumors
   3. Placenta previa
   4. Full bladder or rectum
   5. Atony of the abdominal muscles

B. Fetal causes:

1. Occipito posterior position (commonest cause)
2. Hydrocephalus
3. polyhydramnios
4. Multiple pregnancy
5. Malpresentations as face and brow

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10. What is the engagement of fetal head and its time to occur? Mention maternal and fetal causes of non-engagement in primigravida in the last four weeks of pregnancy. (Aug. 2009)

As mentioned above.

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11. What is the commonest fetal presentation and why? (Aug. 2009)

- Cephalic presentation is the commonest fetal presentations (LOA).
- The fetus is adapted to the **pyriform-shaped uterus** (with the larger breech in the wide fundus).
  - ❖ Cephalic → adaptation of the pyriform uterus with larger buttocks in fundus and smaller head in lower narrow part of uterus
  - ❖ Occipito anterior→ adaptation of spine to lumbar lordosis of mother
  - ❖ Left→ right oblique diameter is wider anatomically and left is occupied by colon

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12. Diagnosis of onset of labor (1999)

Prodroma:

1. Symptoms of engagement:
   - Lightening of breath
   - Shelfing
   - Urine retention
   - Pelvic heaviness
2. True labour pain: abdominal, regular, and not affected with sedation.
3. A brownish, blood tinged mucus discharge (show).

Symptoms:

True labor pains and show

Signs:

Dilatation and effacement of cervix and bag of forewater becomes tense during contractions

1. Abdominal examination:
   Uterine contraction (fundal hardening, regular and increasing in frequency and strength)
2. PV examination:
   - Cervical changes: (effacement and dilatation).
   - Bulging membrane.

---

13. Characteristics of true labour pain (sep. 2013, 2014)

Mnemonic:

(CPRIE)

C → contractions(with retractions) and coordinated

P → progressive

R → rhythmic

I → involuntary

E → effective

- Start in the UUS near the fundus (fundal dominance).
- Start as involuntary, infrequent pains with low amplitude and short duration.
- Gradually increase in frequency, amplitude and duration.
- The interval between contractions becomes shorter with progress of labour.
- Retraction occurs at the end of each contraction leading to permanent shortening of the muscle leading to descent of the presenting part with upward pulling of the LUS.
- During labour the UUS contracts and retracts, while LUS stretches and dilates resulting in progressive cervical effacement and dilatation.
- The physiologic retraction ring: is the demarcation between the active UUS and the passive LUS. It rises upwards towards the umbilicus with progress of labour.
- Uterine contractions are painful due to; compression of nerve ganglia, hypoxia to uterine muscle, stretch of peritoneum over LUS, and the stretch of cervical dilatation.
- Pain is felt at intrauterine pressure of 20-25 mm Hg. It reaches 50-60 mm Hg during active 1ststage of labour, and reaches 80 mm Hg at the 2nd stage of labour.

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14. Management of first stage of labour (Sep. 2012)

1. *Preparation of the patient:*
   - Evacuation of the bladder and rectum.
   - Antiseptic cleansing of the region of vulva and perineum.
2. *Pain relief:*
   - IM injections; pethidine (1 mg/kg every 2-4 hours).
   - Epidural analgesia: most effective pain relied during labour and delivery.
3. *Nutrition:*

   Light diet, oral fluids, and juices; to avoid hypoglycemia.
4. *Instructions and Education:*

   Avoid bearing down· in the 1" stage.
5. *Monitoring progress of labour:*

   Repeat PV examination at timely intervals for documentation of cervical effacement and dilatation and descent of fetal head. Progress in labour is best plotted on a special chart known as the **partogram** to allow early detection of abnormal patterns of labour as prolonged or precipitate labour.
6. *Monitoring FHR and uterine contractions during labour:*
   - Intermittent FHR auscultation using sonic aid.
   - Continuous External FHR monitoring {Cardiotocography CTG}: to evaluate frequency and amplitude of contractions in relation to FHR changes (bradycardia, early decelerations, late deceleration, beat to beat variability).

15. Management of second stage of labour (June, 2014)

1. *Place of delivery:*
   Patient is transferred to a specially equipped delivery room
2. *Maternal position:*
   Lithotomy position is the commonest and most preferable.
3. *Confirm full cervical dilatation and head engagement:*
   By PV examination.
4. *Ensure evacuation of bladder and rectum:*
   Urinary catheter and possible rectal enema.
5. *Sterilization:*
   The vulva and perineum are cleansed with antiseptic solution (Betadine).
6. *Dressings and sterilized gowns:*
   Leaving only the region of vulva and perineum exposed.
7. *Maternal pushing or bearing down:*
   Encouraged during the peak of uterine contractions with the head moving from station +1 to +2 and +3.
8. *Decision for performing episiotomy:*
   Just before crowning of the head a decision should be taken for the need of an episiotomy to avoid extensive perineal tears and facilitate head delivery without much delay.
9. *Crowning of the head:*
   When the BPD is seen distending the vulvar ring.
10. *Delivery of the head:*
    After crowning the head is allowed for gradual extension, with adequate perineal support, with one hand of the attendant, to prevent sudden expulsion of the head with consequent perineal tears. The diameter distending the vulva is the suboccipito-frontal diameter (SOFD) measuring 10 cm.
11. *Delivery of the shoulders and body:*
    a. The shoulders enter the pelvis in an oblique diameter opposite to that previously occupied the head, descend though the pelvic cavity till anterior shoulder reaches the pelvic floor muscles then rotate anteriorly at the same time of external rotation of the head bringing the anterior shoulder directly behind the SP.
    b. Gentle downwards traction on the head till anterior shoulder appears under SP.
    c. The head is then lifted upwards to deliver the posterior shoulder first
    d. The head is again pushed downwards to deliver the anterior shoulder.
    e. The rest of the body slips down easily after delivery of the shoulders
12. *Clamping the umbilical cord:*
    After delivery immediate care of the new born starts by clamping the umbilical cord and cleaning the air passages by nasal suction.

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16. Management of third stage of labour. (Sep. 2014, 2016)

1. *Duration of this stage ranges from 10-30 minutes.*
2. *Wait for signs of placental separation and descent:*
   Gush of blood, elongation of the cord and suprapubic bulge.

3. *Gentle uterine massage is performed suprapubically on the uterine fundus:*
   To ensure uterine contractility and minimize bleeding.
4. *Gentle traction on the cord:*
   To bring the placenta out of the introitus.
5. *Ecbolic as methergine (IM) and oxytocin drip (IV) are usually given immediately after delivery of the fetus:*
   To ensure rapid placental separation and avoid postpartum hemorrhage {PPH). Normal blood loss in 3rdstage< 400 ml.
6. ***Brandt-Andrews method** for active delivery of the placenta:*
   Continuous controlled cord traction with the right hand while the left hand is pushing the uterus upwards suprapubically. Active placental delivery allows for reducing the time of 3rdstage, decreasing amount of blood loss, and decreasing chances for a retained placenta.
7. *Inspection of the placenta:*
   After delivery is mandatory to detect any missing cotyledon that may cause PPH.
8. *Inspection for laceration and episiotomy repair:*
   After delivery of the placenta the birth canal is inspected for vaginal, cervical, or perineal tears which will be dealt with by immediate surgical layered repair of lacerations and episiotomy if present.

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17. Items recorded on partogram. (Jun. 2008)

- It is a graphic record of labour that allows an instant visual assessment of the rate of cervical dilatation plotted against descent of fetal head, in comparison to an expected norm.
- Other data that can be included in a portogram include; timing of ROM, medications, frequency of uterine contractions, and basic observations as the Pulse, temperature, and BP

Maternal:

- General: BP (every 30 min), HR, temp, glucose levels
- Abdominal: uterine contraction
- Local: every 2 hours (cervical dilatation, effacement and fetal head descent) → discuss

Fetal:

- Heart rate every 30 min

Others:

- ROM and medications

---

18. Discuss management of normal labour. (jun. 2000 ,98)

1. *Initial assessment:*
   a. **Gestational age:**
      Calculated from LMP
   b. **History of medical disorder:**
      HTN, DM, Thyroid disorders, Cardiac disease.
   c. **True labour pains:**
      Abdominal, regular, increasing in frequency and strength and no effect on sedation.
   d. **Associated conditions:**
      Rupture of the membranes (ROM) and vaginal bleeding

e. General Examination:

Pulse, temp, BP, RR.

f. Abdominal Examination:

- To detect fundal level, fetal lie, and presentation (Leopold maneuvers)
- Auscultation of FHS (sonicaid or Doppler US) to ensure fetal viability

g. PV Examination:

- Cervical effacement (0-100 %) and dilatation (0-10 cm)
- State of membranes (intact or ruptured)
- Station of fetal head and engagement (station -3, -2, -1, 0, +l, +2, +3)
- Position of the occiput (LOA-ROA-ROP-LOP)
- Presence of caput succedaneum: edema of fetal scalp
- Presence of molding of skull bones (overriding of parietal and frontal bones). Molding results in shortening of SOB diam. and lengthening of MV diam.
- Evaluation of maternal pelvis: sub-pubic angle, ischial spine, sacral promontory (to detect contracted pelvis and CPD)

h. Ultrasound Examination:

- Gestational age confirmation: fetal biometry (BPD, HC, AC, FL, etc.)
- Estimated fetal weight; to exclude fetal macrosomia, and low birth weight
- Confirm presentation and position: cephalic OA/OP, breech, and transverse lie
- Evaluate amount of liquor amnii: normal, oligohydramnios, & polyhydramnios
- Evaluate placental localization: normal at UUS, or low lying at LUS (PL PRV)
- Exclude major fetal anomalies: anencephaly, NTDs, hydrops fetalis, etc.
- Presence of associated pathology as leiomyomas or ovarian masses
- Evaluation of fetal wellbeing: umbilical artery Doppler & biophysical profile

i. Admission to delivery ward under observation: Admission sheet should include data on;

- Personal history: name, age, LMP, EDD, and Gestational age
- Obstetric history: Numerical 4-digit Code and patterns of previous deliveries
- Medical disorders recent or old complicating pregnancy (high risk pregnancies)
- PV examination: for cervical effacement (in %), and dilatation (in cm), head station (-3 to +3), ROM if present, the bony pelvis for exclusion of CPD.
- FHR documentation: to ensure fetal life and exclude fetal distress

2. *Management of first stage of labour:*

   See before.

3. *Management of second stage of labour:*

   See before.

4. *Management of third stage of labour:*

   See before.

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19. Steps done for new born infant (Sep. 2009, 99)

1. Warmth; best under direct heat from a special unit.
2. Clear the airways: by suction of secretions in the oral cavity and nose.
3. APGAR SCORE is done at 1 & 5 minutes to evaluate fetal condition.
4. Identification of the baby by arm and foot ID bands, then by the footprint.

5. Examination for common FCA as: undescended testes, hypospadias, clubfoot, hare lip ...
6. Vitamin K administration: for prevention of hemorrhagic disease of the new born.
7. Care of the eyes; by use of antibiotic eye drops.
8. HBIG is administrated as a prophylactic dose.

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20. Mechanism of delivery of fetus during normal delivery (Jun 2015)

Delivery of the head:

1. **Descent:**
   Continuous through the birth canal in late 1" stage and 2"' stage of labour.
2. **Engagement:**
   - Passage of the BPD through the plane of pelvic inlet.
   - Clinically the vertex will be felt vaginally at the level of ischial spines by PV exam.
3. **Increased Flexion:**
   - Flexion approximates fetal chin to the chest allowing the head to enter the mid pelvis with the least possible transverse and longitudinal diameters (BPD & SOB diameters each 9.5 cm), thus facilitating rotation.
   - Flexion movement is explained by the 2-armed lever theory; where the short arm extends from occiput to the atlanto-occipital joint and the long arm extends from the sinciput to the atlanto-occipital joint. The greater force on the long arm will drive the chin towards the chest promoting flexion.
4. **Internal Rotation:**
   - The occiput rotates anteriorly 1/8 of a circle from either LOA or ROA positions to a direct occipito anterior position (DOA) in preparation for extension.
   - Rotation occurs in the mid pelvis when the occiput touches pelvic floor muscles
   - Internal rotation is explained by:
     - The direction of levator ani muscles; that slopes downwards forwards medially.
     - The rifling action of the pelvis; where the largest diameter of the inlet is oblique while that of outlet is longitudinal forcing rotation in the mid-cavity.
5. **Extension:**
   - The sub occipital region hinges under the symphysis pubis (SP).
   - The head is acted upon by two forces finally resulting in extension:
     - The downwards forwards force of uterine contractions and maternal pushing.
     - The upwards forwards force of pelvic floor resistance.
6. **Restitution:**
   The head rotates back 1/8 of a circle in a direction opposite to that of internal rotation to undo the twist of the foetal neck caused by internal rotation.
7. **External Rotation:**
   It is due to internal rotation of the anterior shoulder and occurs for another 1/8 of a circle in the same direction of restitution

Delivery of the shoulders and body:

1. The anterior shoulder hinges below the SP after anterior rotation 1/8 of a circle.
2. The posterior shoulder is delivered first by lateral flexion of the spine.
3. The anterior shoulder is then delivered followed by rest of body that slips outwards.

Malpresentations and malpositions

1. **Discuss mechanism, etiology, diagnosis & management of occipito-posterior position. (jun. 2001, 2005, 2007, 1999)**

Etiology:

1. **Idiopathic:** in many cases no underlying factor for OP can be defined.
2. **Android shape pelvis**: this is **the most common** underlying factor in OP positions, where the shape of the pelvis allows the larger BPD to occupy the wider hind-pelvis, while the smaller bitemporal diameter (BTD) will occupy the narrow fore-pelvis.
3. Other less common causes: severe maternal kyphosis, pendulous abdomen, twins and MFP, polyhydramnios, contracted pelvis.

Mechanism of delivery:

1. *Correction of deflexion with anterior rotation **(90%):***

   Increased flexion of the head brings the chin nearer to the chest, with the occiput DOA reaching the pelvic floor first, rotating **3/8** of a circle anterior from, OP to DOA. This is known as **long internal anterior rotation of the occiput.** Once OA position is achieved, labour will then proceed normally, where the occiput hinges below SP and the **head delivered in extension**.
2. *Increased deflexion with posterior rotation **(6%):***

   Increased deflexion of the head brings the chin away from the chest, with the sinciput reaching the pelvic floor first rotating anteriorly **1/8** of a circle, i.e. the occiput rotates posterior **1/8** of a circle from ROP or LOP to direct OP. This is known as **short posterior internal rotation** of the occiput. The **head is delivered in flexion** as **face to pubis**.
3. *Deep arrest with failure of rotation **(4%):***

   Failure to correct deflexion will bring both occiput and incipit at the same level with failure of either part to reach the pelvic floor first resulting in **failure of rotation.** Labour will arrest with the sagittal suture either in an oblique or transverse position. This Is known as **deep transverse arrest** which will predispose to **obstructed labour.**

Diagnosis:

1. *Leopold Manoeuvers:*
   - 1st pelvic grip shows a smaller head being grasped at the temporal bones (BTD).
   - 2nd pelvic grip shows a non-engaged deflexed head.
2. *Auscultation:*

   FHS are usually heard away from mid line **below the umbilicus.**
3. *TAS:*

   Ultrasound shows cephalic presentation with **back of the baby** directed **posterior.**
4. *PV Examination: with a partially dilated cervix and ROM:*
   - Head is usually **non-engaged.**
   - Occiput directed posterior either right or left (ROP - LOP).
   - Following the sagittal suture will define the level of anterior and posterior fontanels to confirm position and evaluate the degree of deflexion of the head.
   - Examination of the pelvis **to exclude** cephalopelvic disproportion **(CPD).**

Management:

1. **Exclude CPD** and contracted pelvis by PV examination.

2. **Exclude** Placenta previa and fetal macrosomia by TAS.
3. Prepare the patient for **a prolonged labour** (light diet, juices, IV fluids).
4. Ensure **pain relief** to avoid maternal exhaustion (best by epidural analgesia).
5. **Continuous FHR monitoring** to ensure fetal wellbeing and detect fetal distress.
6. **Watchful expectancy** for trial labour as 96% of OP are expected to deliver vaginally in presence of good uterine contractions and absence of CPD.

+ Add management of all stages in brief

First stage:

Guard against:

1. Inertia:
   a. Evacuate bladder and rectum
   b. Correct dehydration
   c. Avoid excess sedation
2. PROM:
   a. Avoid excess PV
   b. Patient should lie in bed
   c. Avoid strong enema
3. Sepsis:
   a. Prophylactic antibiotics
   b. Avoid PROM
   c. Avoid excess PV

"OBSERVATION is done by partogram"

2nd stage:

Delivery is allowed for 1-2 hrs in PG

3rd stage:

Guard against PPHge and care for the newborn (as before)

---

2. Mechanism of labour of face presentation (jun. 2012)

1. *Mento anterior positions (RMA- LMA):*
   - **Delayed engagement** of the head with BPD (9.5 cm) passing through the pelvic inlet.
   - Rotation of the mentum **1/8** of a circle anterior from RMA & LMA to OMA position.
   - **Delivery of the head in flexion** with the SMV diameter (11.5 cm) distending the vulva.
   - Flexion in OMA can occur as the longer neck is facing the shorter symphysis pubis (SP).
   - **Successful delivery** will thus be achieved in face MA positions in absence of CPD.
2. *Mento posterior positions (RMP - LMP):*
   - **Delayed engagement** of the head with BPD (9.5 cm) passing through the pelvic inlet.
   - Rotation of the mentum **3/8** of a circle anterior from RMP & LMP to OMA position.
   - **Delivery of the head in flexion:**
     a. **Successful rotation to MA** and delivery occurs **in 2/3** of cases with MP positions.
     b. **Obstructed labour** will occur in **1/3** of cases of MP due to either;
        - **Failure of rotation** leading to arrest of face in either oblique or transverse diameters (persistent oblique MP or arrest in MT position).
        - **Posterior rotation** of the mentum to direct MP (DMP). In such cases the head cannot flex facing the long sacrum, and cannot extend being already fully

extended thus labour will be **obstructed.**

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3. After coming head of breech. (Jun 2000, 2003/ Sep. 2007).

i. Normal mechanism of head delivery .
ii. Assisted delivery of the after coming head.
iii. Indications of CS in breech.
iv. Complications.

i. Normal mechanism of head delivery:

1. **Descent:**

   A continuous through the birth canal in late 1" stage and 2"' stage of labour.

2. **Engagement:**
   - Passage of the BPD through the plane of pelvic inlet.
   - Clinically the vertex will be felt vaginally at the level of ischial spines by PV exam.

3. **Increased Flexion:**
   - Flexion approximates fetal chin to the chest allowing the head to enter the mid pelvis with the least possible transverse and longitudinal diameters (BPD & SOB diameters each 9.5 cm), thus facilitating rotation.
   - Flexion movement is explained by the 2-armed lever theory; where the short arm extends from occiput to the atlanto-occipital joint and the long arm extends from the sinciput to the atlanto-occipital joint. The greater force on the long arm will drive the chin towards the chest promoting flexion.

4. **Internal Rotation:**
   - The occiput rotates anteriorly 1/8 of a circle from either LOA or ROA positions to a direct occipito anterior position (DOA) in preparation for extension.
   - Rotation occurs in the mid pelvis when the occiput touches pelvic floor muscles
   - Internal rotation is explained by:
     - The direction of levator ani muscles; that slopes downwards forwards medially.
     - The rifling action of the pelvis; where the largest diameter of the inlet is oblique while that of outlet is longitudinal forcing rotation in the mid-cavity.

5. **Extension:**
   - The sub occipital region hinges under the symphysis pubis (SP).
   - The head is acted upon by two forces finally resulting in extension;
     - The downwards forwards force of uterine contractions and maternal pushing.
     - The upwards forwards force of pelvic floor resistance.

6. **Restitution:**

   The head rotates back 1/8 of a circle in a direction opposite to that of internal rotation to undo the twist of the foetal neck caused by internal rotation.

7. **External Rotation:**

   It is due to internal rotation of the anterior shoulder and occurs for another 1/8 of a circle in the same direction of restitution.

ii. Assisted delivery of the after coming head:

With the baby hanging down by its weight the head descends until **the occiput hinges behind the SP**, followed by either:

1. **Burns-Marshal's Method:**

   When the occiput appears anteriorly hinging below the SP, the infant's legs and feet are held and lifted upwards in a sweeping movement towards maternal abdomen. **The head will flex gently and deliver vaginally.**

2. **Jaw Flexion Shoulder Traction Method (Mauriceau-Smellie-Veit maneuver):**

   With the back anterior the fetus is held with the left hand of obstetrician. The index and middle fingers of the right hand start gentle traction at the fetal neck downwards while the index and middle finger of the left hand keep pressing on the maxilla to promote flexion of the head. When occiput is traversing the pubic arch, the baby is lifted outwards and upwards, **to deliver the head in flexion.**

Kristiller's maneuver:

Consists of gentle suprapubic pressure at the uterine fundus during delivery of the head performed by the assistant in order to guide the head through the pelvis and maintain its flexion.

Forceps delivery:

Rarely resorted to in delivery of the after coming head in modern obstetrics as its use has been associated with **maternal birth canal injuries** and most cases with anticipated difficult delivery are usually offered CS.

iii. Indications of CS in breech:

1. Fetal weight > 3.5 kg or < 2.5 kg .
2. Footling breech presentation : probable ROM & delivery before full cervical dilatation.
3. Extension of foetal neck by US : to avoid arrest of descent & failure of head rotation.
4. Twins & MFP when 1st is breech (to avoid locked twins).
5. General indications of CS : CPD , PL PRV , previous uterine scar , elderly primigravida , infant of diabetic mother with macrosomia.

iv. Complications :

1. **Maternal :**
   - Prolonged labour, PROM, maternal exhaustion, and more liability to puerperal sepsis.
   - PPH both atonic & traumatic due to prolonged labour, manipulations during delivery, together with cervical & vaginal lacerations.
2. **Fetal:**

   Entrapment of the fetal head within the bony pelvis and birth canal due to undiagnosed CPD, contracted pelvis, or a non-fully dilated cervix, may all result in:
   - Fetal asphyxia: due to prolonged head compression and cord obstruction.
   - Intracranial hemorrhage; due to sudden compression and decompression of the head.
   - Fetal birth injuries: due to traction on the neck including: brachial plexus injury, fracture of the clavicle, rupture of the liver or spleen, and hip dislocation.

---

4. Fetal complications of vaginal breech delivery (jun. 2002)

Entrapment of the fetal head within the bony pelvis and birth canal due to undiagnosed CPD, contracted pelvis, or a non-fully dilated cervix, may all result in:

1. Fetal asphyxia: due to prolonged head compression and cord obstruction.

2. Intracranial hemorrhage; due to sudden compression and decompression of the head.
3. Fetal birth injuries: due to traction on the neck including: brachial plexus injury, fracture of the clavicle, rupture of the liver or spleen, and hip dislocation.

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5. Describe mechanism of breech delivery (jun. 2006)

1. **Descent:**
   During the 1" stage with good uterine contractions and retraction.
2. **Engagement:**
   When bitrochanteric diameter (9.5-10 cm) traversing the plane of the inlet.
3. **Internal rotation:**
   The anterior buttock reaches the pelvic floor first, rotates 1/8 circle anteriorly, hinges below the SP with the posterior buttock facing the sacrum.
4. **Delivery of the buttocks:**
   The posterior buttock and hip are delivered through the distended vulva by lateral flex ion of the spine with the sacrum at a transverse position.
5. **Delivery of the shoulders:**
   The shoulders enter the pelvis in the same oblique diameter as the buttocks, the anterior shoulders reaches the pelvic floor first, rotates **1/8** circle anterior, hinges below the SP, the posterior shoulder is delivered followed by the anterior.
6. **Delivery of the after-coming head:**
   The head enters the pelvis in an oblique diameter opposite to that of the buttocks and shoulder. The chin touches the pelvic floor muscles, the head rotates bringing the occiput to hinge below the SP. The head is then delivered inflexion.
   "In Sacro posterior positions the occiput will enter the pelvis in a posterior position and has to rotate **3/8** of circle anteriorly to DOA position to be delivered".

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6. Breech presentation: definition, types and mechanism of labour (jun. 2012)

Definition:

Breech presentation is a longitudinal lie in which the buttocks form the presenting part. Denominator bone is the sacrum.

Types:

1. **Complete breech:**
   Hips and knees are both flexed with feet presenting beside the buttocks.
2. **Incomplete breech:**
   Partial or complete extension is present at hip, knee, or both:
   a. Frank breech:
      Hips flexed and knees extended (buttocks only form the presenting part)
   b. Footling breech:
      Hips and knees extended on one or both lower limbs.

Mechanism of labour:

See before.

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7. Handling of assisted breech (june 2014)

Vaginal breech delivery (VBD) is allowed whenever initial evaluation reveals an average size, full term baby with normal progress of 1st stage of labour, in absence of contracted pelvis or suspected feta-pelvic disproportion:

1. **Avoid maternal bearing down before the buttocks reach the introitus** (vulvar ring)
2. Ensure **full cervical dilatation** before attempting delivery.
3. **Episiotomy** should be performed when the buttocks distend the vulva. It should be adequate to allow for lateral flexion of the spine and easy delivery.
4. Delivery of the buttocks and legs: after episiotomy the buttocks and legs are delivered **slowly with controlled perineal support** keeping the back always anterior.
5. **Avoid fetal aspiration** of amniotic fluid: by placing a warm towel on the fetal back to avoid premature stimulation of fetal breathing (due to cold stimulus).
6. **Ensure normal FHR**: a loop of cord is drawn and palpated to ensure presence of regular heart pulsations and ensure safe delivery.
7. **Delivery of the shoulders**: When the anterior scapula hinges below the SP the arm is delivered by hooking a finger near the elbow and sweeping the arm downwards. This is followed by rotation of the fetal body 180 degrees to bring the posterior arm anteriorly to be delivered as the anterior arm.

Assisted delivery of the after coming head:

See before.

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8. Complications of breech delivery (jun. 2011)

1. **Maternal:**
   - Prolonged labour, PROM, maternal exhaustion, and more liability to puerperal sepsis.
   - Postpartum hemorrhage (both atonic and traumatic) due to prolonged labour, manipulations during delivery, together with cervical and vaginal lacerations.
2. **Fetal:**

   See before.

---

9. Complications of multifetal pregnancy (jun. 2008, 2012/sep. 2011, sep. 2013)

1. Fetal congenital anomalies (FCA)
2. Abortion and preterm delivery PTL (risk increases with number)
3. Low birth weight (LBW) infants (risk increases with increased number)
4. Placenta previa (PL PRV) due to a large or multiple placenta encroaching on LUS
5. Malpresentations leading to higher CS (50%}
6. Medical disorders in pregnancy including; Hyperemesis gravidarum (HEG), preeclampsia (PE), gestational diabetes mellitus (GDM), venous thrombo-embolism (VTE), and nutritional anemia (Fe and Folate deficiency).
7. **Additional risks for monozygotic twins include**:
   a. **Twin to twin transfusion:**

      Occurs in nearly 15% of MD and MM twins sharing the same placenta. The donor twin gets less blood supply resulting in intra uterine growth restriction (IUGR), oligohydramnios and anemia. The recipient twin gets more blood supply resulting in excessive growth (macrosomia, polyhydramnios, and polycythemia.

b. **Conjoined twins:**
Twins may be adherent at the chest (thoracopagus), head (craniopagus), or sacrum (ischiopagus). Such cases are usually lethal. However, in some cases surgical correction may be successful but usually sacrificing one baby.

c. **More incidence of CS:**
Due to more polyhydramnios and malpresentations. If membranes rupture delivery of a second non-cephalic twin is more complicated.

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10. Values of US in MFP. (sep. 2008)

TAS: US is the gold standard for diagnosis of MFP. Benefits include:

1. Most accurate estimation of number of fetuses and gestational age (GA).
2. Differentiation between DD/MD/and MM type of twins.
3. Diagnosis of fetal congenital anomalies (FCA) and conjoined twins.
4. Evaluation of liquor amnii (polyhydramnios & oligohydramnios).
5. Evaluation of placental location and exclusion of PL PRV.
6. Evaluation of fetal wellbeing (biophysical profile and Doppler).
7. Diagnosis of 2nd twin presentations: commonest are vertex/breech, vertex/transverse, and breech/transverse.

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11. Indications of C.S in MFP (jun. 2012)

1123

1 → monoamniotic

1st twin non vertex

2nd retained twin

3 → triplets or more

Others: conjoint and general indications of CS

1. **1st non-vertex twin:**
To avoid locked twins.
2. **Triplets & more MFP:**
Delivery of the 2nd & 3rd twins will be unsafe with malpresentations.
3. **Monoamniotic twins:**
More incidence of polyhydramnios and malpresentations. Also, ROM with delivery of the 1" twin will compromise delivery of the 2nd twin especially if transverse lies due to decreased liquor.
4. **Conjoined twins:**
To avoid obstructed labour, rupture uterus and fetal birth injuries.
5. **Other indications of CS:**
As PL PRV, previous CS or myomectomy scar, associated severe PE or GDM, failed progress of labour.

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12. Diagnosis of twins (1999)

1. **Inspection:** abdominal girth larger than expected gestational age.
2. **Palpation:** Fundal and umbilical grips: multiple fetal poles and limbs.

3. **Auscultation of FHS:** several points of maximum intensity and different FHR.

"Add symptoms, inv, diagnosis during pregnancy and labor"

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13. Delivery of 2nd twin (sep. 2014)

- Delivery of the 2nd twin: according to fetal presentation:
  1. **Cephalic:** ROM and allow for a normal vaginal delivery like the 1" twin
  2. **Breech**: ROM and breech extraction.
  3. **Transverse lie:** internal podalic version {IPV), ROM and breech extraction.
- Ecbolics (oxytocin & ergometrine) after delivery for prevention of atonic PP hemorrhage.
- Exploration of the cervix and vagina to guard against traumatic PP hemorrhage .
- Antibiotics for prevention of puerperal sepsis.

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14. Give a short account on management of transverse lie (2017)

1. *External cephalic version (ECV):*
   - It entails correction of transverse lie into a cephalic presentation through rotation of the body 90 degrees along its axis.
   - It's best performed during late pregnancy (>34weeks between 35 & 37 weeks).
   - Late ECV may be difficult due to the large size of the fetus and the small amount of liquor.
   - However, it can also be performed in the first stage of labour when membranes are intact, in between uterine contraction in absence of other indication of CS.
2. *Caesarean section:*

It's indicated in the following conditions:

a. When ECV carries high risk for mother or fetus.
b. Cases of contracted inlet / placenta previa (when vaginal delivery is contra-indicated).
c. Septate/ bicornuate uterus, leiomyomas, twins or multi fetal pregnancies (where correction is impossible).
d. Other indications of CS e.g: previous CS, uterine scar, severe preeclampsia, gestational DM with fetal macrosomia…etc.

3. *Internal podalic version& breech extraction:*
   - It has limited place in modern obstetrics.
   - Its main indication is for delivery of the second transverse lie twin.
   - It's performed when cervix is completely dilated.

N.B.

Neglected shoulder:

- When after rupture of membranes and partial cervical dilatation, one arm is prolapsed through the vagina.
- CS is the only solution to avoid IUFD & rupture of the uterus.

Cephalopelvic disproportion

1. Name cephalopelvic disproportion tests; mention timing & methods of procedures.

- Cephalo-pelvic disproportion (CPD) tests are clinical tests to assess possibilities of the foetal head to be delivered vaginally in primigravida.
- Based on the concept that the head is the best Pelvimeter.
- Timing: week 38 or 1st stage of labor

	Pinard test	***Muller-Kerr method***
Patient`s position	Patient in **semisitting positon** with bladder empty.	Patient in **dorsal position** with bladder empty.
Technique	-The operator with his left hand grasps the foetal head and tries to push it downwards backwards in the pelvis along the pelvic axis. -The fingers of the operators right hand placed over the SP can determine the degree of dis-proportion and whether head overrides SP or passes smoothly through the inlet.	- The operator performs a digital **PV examination** with the fingers of the right hand performing the steps of internal clinical pelvimetry. - The thumb of the right hand is placed over the SP to determine the degree of disproportion if present. - The operator with his left hand grasps the foetal head and tries to push it down through the pelvic inlet with the thumb of the right hand in over the SP trying to evaluate the presence and degree of CPD.

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2. Clinical internal pelvimetry (sep. 2012).

- **The sub-pubic angle** is: obtuse & ischiopubic ramus accommodates 2 fingers.
- **The bituberous diameter** (11 cm): (transverse diameter of the outlet) roughly admits the 4 knucklesof the closed fist of the hand.
- **The diagonal conjugate** DC (12.5 cm): is measured between the lower border of the SP & the promontory of sacrum. It is 1.5 cm larger than the true conjugate TC.

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3. Maternal & fetal risks during labour in contracted pelvis.

Maternal risks:

- Prolonged labour leading to maternal exhaustion.
- May be associated with uterine inertia.
- Obstructed labour (discuss in details).

Fetal risks:

- Malpresentations as face, brow & transverse lie (contracted inlet).

- Non engagement of the head during the 1st stage of labour.
- Prolonged labour & fetal distress.

Abnormal labor (Abnormal uterine action)

1. **Contraction ring: definition, diagnosis & treatment (june 2010, {2011: + differential diagnosis})**

Definition:

A localized annular spasm of the uterine muscle that may occur at any stage of labor, and at any part of the uterus, but commonly at the junction between UUS & LUS.

Diagnosis:

- Usually preceded by **colicky uterus** and only felt vaginally at junction of UUS and LUS
- It is associated with **prolonged 2nd stage** of labor, or retained placenta in **3rd stage.**
- It may be associated with **foetal distress**

Differential diagnosis:

Pathological retraction ring (Bandl's ring).

Point of comparison	***Pathological retraction ring***	***Contraction ring***
Stage	Occurs with prolonged 2nd stage	Occurs during any stage of labour
Site	Lies between UUS and LUS	Occurs at any level
Change of position	Rises upwards towards the umbilicus	Doesn't change its position
Diagnosis	Felt and seen abdominally	Not seen, and only felt vaginally
State of the uterus	Tense and tender	Not tonically retracted
Maternal and fetal distress	Common	May not be present
Relief	Only by delivery	Only by deep anaesthesia
Clinical picture	Obstructed labor	Prolonged labor

Treatment:

- Exclude CPD, malpresentations & malpositions.
- Stop oxytocin infusion if present.
- Give epidural anaesthesia to relax the uterus or general anaesthesia in severe cases.
- Perform CS if foetal or maternal distress or CPD.

Other topics Not asked in the exams before (yet!):

1. **Cervical dystocia: Definition, etiology & management**

Definition:

Failure of timely cervical dilatation in absence of uterine inertia during the 1st stage of labour.

Aetiology:

1. Idiopathic or functional cervical rigidity of unknown aetiology
2. Organic obstruction: due to pelvic masses or cervical myoma
3. Iatrogenic cervical fibrosis due to:
    - Healed lacerations (from previous difficult deliveries, previous cerclage procedures, excision of ectocervical cervical myoma)
    - Cervical stenosis: following :سطمبة
      Cervical amputation (Fothergill's op.), conization (High grade CIN ttt) or cauterization

Management:

- In idiopathic or functional cervical rigidity → Sedation and epidural analgesia may help cervical effacement and dilation
- CS in cases of rigid cervix or extensive fibrosis

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2. Risk factors, complications & management of shoulder dystocia.

Risk factors:

Foetal macrosomia is the most important one, commonly associated with:

- Idiopathic LGA foetus
- Maternal **Gestational** DM
- Foetal hydrops (immune / non immune)

Complications:

1. *Foetal:*
   a. Birth injuries: **Brachial plexus injury (Erb's palsy),** fracture clavicle & fracture humerus
   b. Asphyxia & IUFD
2. *Maternal:*
   Rupture uterus, maternal & cervical laceration

Prevention:

1. Proper antenatal assessment of foetal weight by clinical & US evaluation
2. Proper control of maternal GDM especially in 3rd trimester
3. CS in cases with established macrosomia

Management during labor:

1. McRobert's maneuver:
   Maternal thigh flexion with suprapubic pressure
2. Wood's cork screw maneuver:
   Internal rotation of foetal shoulders to oblique plane
3. Manual delivery of the posterior arm
4. Zavinelli maneuver:
   Cephalic replacement and CS

---

3. Symptoms & signs of obstructed labor (June 2001, 2008/sep. 2013)

1. *History:*
   Prolonged labour with long ROM in presence of adequate contractions
2. *General examination:*
   - Maternal exhaustion and dehydration
   - -Dry tongue, rapid pulse, oliguria, and low BP
3. *Abdominal examination:*
   - Uterus is tense and tender
   - *FHS are inaudible (IUFD), or persistent bradycardia < 100 (foetal distress)*
   - Pathological Retraction ring (Bandl's ring); it is a transverse groove that can be seen and felt abdominally at the demarcation between upper and lower uterine segment (UUS & LUS). It can be seen rising in its level upwards towards the umbilicus in cases of impending rupture of the uterus.

4. Vaginal examination:

"Bone, cervix, membranes, presenting part"

May reveal:

- Non engaged presenting part (vertex, face, brow, breech, & shoulder)
- Oedematous cervical rim may still be felt if cervix is not fully dilated + vagina edematous and warm
- The cause of obstructed labour may be elicited (malpresentation, malposition, contracted pelvis, CPD, cervical dystocia, or soft tissue obstruction).
- Caput succedaneum in vertex cephalic presentation due to scalp oedema

  (caput succedaneum may give a false impression of head engagement where the scalp is felt low in the vagina while the skull bone is still at a higher non engaged level (-2, or -3).)

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4. Causes & Complications of obstructed labor (June 2002)

Causes:

1. Contracted pelvis and marked degrees of CPD.
2. Cervical dystocia (see before)
3. Soft tissue obstruction by cervical leiomyomas, and large ovarian swellings
4. Foetal macrosomia and extremely LGA foetus > 4.5 kg. (Caused by DOPE)
5. Shoulder dystocia; impacted shoulders after delivery of the head
6. Locked twins (rarely when 1st twin is breech and second cephalic or transverse lie)
7. Non corrected malpresentations and malpositions as:
   - Persistent oblique and transverse OP positions (deep arrest of OP). (Most comon cause of obstructed labor)
   - Persistent oblique and transverse face MP, and direct face MP.
   - Brow and shoulder presentation.
   - Breech impacted in the pelvic inlet. (Retained after Coming head)

Complications

1. *Maternal:*
   - Complications of prolonged labour:Maternal exhaustion, ROM & Chorioamnionitis
   - Rupture of the uterus which may necessitate laparotomy for repair or hysterectomy
   - Cervical, vaginal & perineal lacerations
   - Necrotic vesico-vaginal fistula (VVF): due to prolonged head compression on the bladder
   - Puerperal sepsis: due to prolonged ROM & traumatic manipulations
2. *Fetal:*

   Fetal distress → asphyxia → IUFD

---

5. Diagnosis & management of obstructed labor (sep. 2007)

Diagnosis:

See Q before

+ Differential diagnosis:

Contraction (Constriction) ring (see the table before)

Management:

1. *Emergency CS is **the safest option.***
2. *In cervical dystocia:*
   - In idiopathic or functional cervical rigidity → Sedation and epidural analgesia may help cervical effacement and dilation
   - CS in cases of rigid cervix or extensive fibrosis
3. *In Shoulder dystocia:*
   - **McRobert's maneuver**: maternal thigh flexion with suprapubic pressure
   - Wood's cork screw maneuver: internal rotation of foetal shoulders to oblique plane
   - Manual delivery of the posterior arm
   - Zavinelli maneuver: cephalic replacement and CS
4. *Instrumental delivery (forceps or ventouse) for cephalic prsentations should be **discouraged:***
   As the head is not engaged and attempts of delivery may be complicated by rupture uterus, with high maternal morbidity and mortality from bleeding and sepsis.

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5. OBSTETRIC COMPLICATIONS

Rupture uterus & lacerations

1. Etiology, types and ttt of vaginal laceration during labour.

"Same etiology, complications and treatment as perineal tears; better write from gynae"

Etiology:

1. Precipitate labour:
   Due to rapid passage of the head through birth canal without adequate perineal support.
2. Delivery of LGA or macrosomic fetus without adequate episiotomy.
3. Instrumental delivery without adequate episiotomy.
4. Rigid perineum without tight vaginal and strong perineal muscles.

Types:

1st degree tear:

Involve only vaginal mucosa.

2nd degree tear:

Involve vagina and perineal muscles.

3rd degree tear:

Involve vagina, perineal muscles and anal sphincter.

4th degree tear:

Involve vagina, perineal muscles, anal sphincter and anal mucosa.

Treatment:

1st degree tear:

Suture repair is often not needed except if severe bleeding is present.

2nd degree tear:

Suture repair is necessary to avoid disfiguring and painful scar.

3rd degree tear:

Layered suture repair is mandatory to avoid anal incontinence.

4th degree tear:

Layered suture repair is mandatory and if not properly managed may lead to anal incontinence and or rectovaginal fistula formation.

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2. Etiology and diagnosis of cervical laceration.

Etiology:

1. Delivery of fetal presenting part through non fully dilated cervix.
2. Rapid passage of fetal head through the birth canal.
3. Delivery through a previously scarred cervix.

Diagnosis:

1. **Inspection:**
   Excessive vaginal bleeding immediately after delivery of the fetus and placenta.
2. **Abdominal examination:**
   Fundus of the uterus is well contracted.

3. **<u>Vaginal examination:</u>**
   Cervical tear is usually palpable on PV examination.
4. **<u>Exploration of cervical lip under good light using vaginal speculum and ring forceps:</u>**
   To visualize the cervical laceration and start immediate repair.

3. Risk of uterine rupture.

1. *Grand multipara (more than 5 deliveries):*
   Due to weak uterine musculature, tendency to LGA fetus, pendulous abdomen with malpresentation and malposition and pelvic abnormalities due to acquired osteomalacia.
2. *Previous uterine scar especially UUS and myomectomy scar:*
   Due to defective myometrium at the site of scar healing.
3. *Fetal macrosomia and LGA fetus:*
   Due to higher risk of CPD and obstructed labor.
4. *Instrumental delivery as mid forceps and rotational forceps procedures.*

---

4. Rupture uterus during labor: causes, clinical picture and management.

Causes:

1. *Rupture at previous uterine scar:*
   - UUS scar as myomectomy scar, longitudinal USCS scar and scar due to uterine perforation during D&C and sounding.
   - Transverse LUS are stronger than UUS scars and less prone to rupture during VBAC
   - ❖ Scar dehiscence: incidence less than 1% in late 3rd trimester and stage of labor.
   - ❖ Complete rupture: incidence nearly 5/1000 during trial VBAC.
2. *Rupture due to obstructed labor: (contraction against obstruction)*
   - CPD and contracted pelvis.
   - Malpositions and malpresentations

<u>N.B.</u>

Rupture usually occurs at the junction between UUS and LUS at transvers groove known clinically as the retraction ring.

3. *Traumatic rupture of the uterus:*
   a. **<u>Extended cervical tears:</u>**
      Due to delivery of presenting part before full cervical dilatation.
   b. **<u>Instrumental delivery:</u>**
      Faulty use of forceps or ventouse before full cervical dilatation.
   c. **<u>Rupture due to obstetric manipulation:</u>**
      As internal podalic version, breech extraction and manual separation of an adherent placenta.
   d. **<u>Rupture due to external abdominal trauma:</u>**
      As fall from height, direct hit on the abdomen, car accidents and stab wounds.

Clinical picture:

A. Symptoms:

- Sudden severe abdominal pain followed by cessation of uterine contraction.
- Sudden onset of vaginal bleeding that may be severe.
- Sudden cessation of fetal movement(usually associated with fetal death)

B. *Signs:*

- **General examination:**

  May reveal signs of hypovolemic shock due to rapid blood loss.
- **Abdominal examination:**

  May reveal easily palpable fetus parts just below abdominal wall, abdominal fetal lie, sever fetal bradycardia or absent FHS.
- **Vaginal examination:**

  Recession of presenting part to higher pelvic station or an abdominal position، vaginal bleeding is usually severe.

C. *Investigations:*

TAS: confirm an abnormal fetal lie and detect presence or absence of FHR to exclude IUFD.

Management:

1. *Resuscitation and anti-shock measurement:*

   This is the 1st step prior to any surgical intervention in cases showing suffering massive blood loss and signs of hypovolemic shock.
2. *Surgical repair:*
   - An exploratory laparotomy is performed once patient is stabilized aiming at arresting uterine bleeding, resuturing of the torn myometrium and reforming the uterus back its normal configuration.
   - Successful pregnancy occurs after adequate surgical repair however delivery by CS will be mandatory for fear of rupture uterine scar.
3. *Abdominal hysterectomy:*

   Hysterectomy is indicated whenever rupture of the uterus is extensive beyond proper repair, and bleeding is sever risking the life of the patient especially in elderly multigravida with no desire for future fertility.

Postpartum haemorrhage

1. **Discuss 1ry atonic postpartum hemorrhage (etiology-clinical picture-treatment)**
2. **Diagnosis and management of postpartum hemorrhage**
3. **Prevention and control of atonic postpartum hemorrhage**

Etiology:

رحم مجهد قبل كده أو رحم أجهد أثناء ← حمل (عيل كبير-عيال كتير)
← ولادة
+ رحم مش عارف ينقبض ← حاجة من الmuscles
← حاجة من الcavity

1. Grand multipara (more than 5 children) مجهد قبل كده
2. Over-distension of uterus (macrosomic-MFP-polyhydramnios) أجهد أثناء الحمل
3. Prolonged labor > 24 hrs especially 2nd stage أجهد أثناء الولادة
   or rapid labor <4 hrs
4. Couvelair's uterus (major placental abruption) مش عارف ينقبض
5. Uterine leiomyoma مش عارف ينقبض
6. Previous PPH

Clinical picture :

رحم مش بينقبض ← فهو soft والدم متجمع فيه مش عارف يخرج عشان مفيش انقباض

- Uterus is soft and lax (no contractions)
- Fundal level is rising due to accumulation of blood
- Bleeding coming through dilated cervix

Prevention of PPH:

1. *Antepartum:*
   - Proper ANC for detection of high risk
   - Proper management of medical disorders
   - Proper selection of VBAC patients
2. *Intrapartum:*
   - **<u>1st stage</u>:**
     Proper detection of labor abnormality by partogram
     Exclude CPD
     Guard against intertia in malpresentations
   - **<u>2nd stage</u>:**
     Proper management of malpresentations
     Episiotomy when indicated
     CS when indicated
     Proper use of instruments
   - **<u>3rd stage:</u>**
     Proper management of 3rd stage (active)
     Inspection of placenta and membranes (to avoid retained placenta)
     Fundoperineal examination after instrumental delivery

Management + treatment:

1. *Resuscitation and anti shock measures (for all PPH)*
   - Insertion of wide bore IV canula and urinary catheter
   - Continuous monitoring of vital signs (pulse, temp, BP, RR) and urine output
   - IV infusion with saline/lactate ringer
   - Blood reserved for emergency
2. *Management of atonic PPH*
   - Immediate treatment with ecbolics
   - Uterine massage:
     - External → place thumb of left hand anteriorly and palm + 4 fingers posteriorly gently and continuous massage
     - Internal (bimanual) → place fist of the hand vaginally and second hand abdominal compression + massage

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4. Enumerate the high risk factors of PPH

5. Discuss the etiology of 1ry PPH

6. Discuss types and etiology of PPH

1ry PPH

ATony-Trauma- Tissue (retained placenta , PL PRV)-DIC-Inverted uterus

1. *Atony:*

   See the previous question
2. *Genital tract trauma (2nd most common)*

   (Upper genital tract: rupture uterus)

   (Lower genital tract: cervix-vagina-perineal lacerations)

   Etiology: the same as obstetric trauma during labor

   a. **Rupture uterus:**
      - Obstructed labor, CPD, LGA fetus
      - Instrumental delivery
      - Presence of prior CS

   b. **Cervical lacerations:**

      Delivery before complete dilatation (PTL-precipitate labor-breech)

   c. **Perineal lacerations:**

      No episiotomy with rigid perineum – large head – tight vagina

   Clinical picture of traumatic PPH:
   - History of predisposing factor
   - General: shock
   - Abdominal: uterus well contracted (or signs of intraperitoneal hge in rupture uterus)
   - Local: bleeding+ lacerations

   Management:
   1. As all types resuscitation and anti shock measures (as before)
   2. Rupture uterus → laparotomy exploration then repair or hysterectomy
   3. Genital tract laceration 1ry suture
3. *Retained placenta.*

4. *Pl PRV due to decreased muscular content so inadequate contractions.*
5. *Coagulopathy disorders (rare but fatal):*
   a. Hypofibrinogenemia and DIC
   b. Purpura
   c. Von Willebrand disease (VII deficiency)
6. *Uterine inversion (uterus turns inside out):*

   The uterus become soft in 2nd stage of labor + dilated cervix, so pressure on fundus and traction from below could result in inversion an protrusion through dilated cervix

   Etiology:
   1. Idiophathic
   2. Iatrogenic: (poor management of 3rd stage of labor)
      a. Uncontrolled cord traction
      b. Cord torsion before signs of separation
      c. Manual separation of adherent placenta

Management:

Resuscitation of neurogenic ang hemorrhagic shock followed by reposition

2ry PPH

Causes:

1. Tissue retained placenta (most common)
2. Lacerations
3. Chronic inverted uterus
4. Sloughing of infected submucous fibroid polyp
5. Choriocarcinoma (most serious)

---

7. Discuss retained placenta.

Definition:

- Retained placenta describes a condition in which placenta fails to be delivered within 30 minutes after delivery of the fetus.
- It may complicate 0.5% of vaginal deliveries.

Aetiology:

1. **<u>Failure of expulsion of separated placenta after delivery:</u>**
   - Uterine atony.
   - Contraction ring.
   - Rupture of the uterus.
2. **<u>Failure of expulsion of non separated placenta due to;</u>**
   - Uterine atony
   - **Adherent placenta:**
     - This is rare condition in which the decidua basalis is totally or partially defective leading to direct adherence and invasion of chorionic villi into the myometrium.
     - Absence of plane of cleavage in such cases interfere with placental separation.

- Types of adherent placenta include:
    - **i. <u>According to depth of invasion:</u>**
        1. Placenta accreta:
           Chorionic villi becomes adherent to myometrium with absence of plane of cleavage, this is the most common.
        2. Placenta increta:
           Chorionic villi invade into the myometrium.
        3. Placenta percreta:
           Chorionic villi pentrate through the myometrium reaching serosa and may invade the bladder wall.
    - **ii. <u>According to surface area:</u>**
        1. Total
        2. Partial
        3. Focal

Risk factors for retained placenta:

1. **<u>Risk factors for uterine atony as:</u>**
   Previous history of atony, over distention of the uterus, grand multipara, prolonged labour especially 2nd stage, placental abruption and uterine myoma.
2. **<u>Risk factors for contraction ring:</u>**
   May be due to hypertonic inertia in prescence of malpresentation, uncontrolled use of oxytocin or rough manipulation.
3. **<u>Risks for adherent placenta:</u>**
   - Placenta previa espicially complete and partial centralis placenta.
   - Implantation on previous CS scar especially repeat CS more than 2.

Clinical picture:

1. Failure of delivery of placenta within 30 minutes from delivery of the fetus.
2. Clinical picture of atonic PPH in uterine atony with retained separated placenta.
3. In case of contraction ring: vaginal examination with one hand inside the uterus through the dilated cervix will reveal the condition, severe PPH is present.
4. In case of retained non separated placenta as in placenta accreta bleeding is usually not sever due to adherent placenta, attempts at manual removal of an adherent placenta may provoke severe PPH.

Complications

1. Atonic 1ry PPH.
2. Obstetric shock.
3. Retained fragments with 2ry PPH.
4. Puerperal sepsis due to prolonged periods, manual removal and blood loss.

Management:

In case of separated placenta;

1. Ecbolics to induce uterine contractility.
2. Gentle abdominal uterine massage to stimulate uterine contraction.
3. Brandt- Andrews maneuver: controlled cord traction with supra pubic pressure.
4. <u>Manual separation and removal of placenta:</u>
   In case of mild focal adherence without invasion, one hand is introduced inside uterine

cavity along umbilical cord, placenta is separated by sheering movement of the palm and fingers to create a plane of cleavage, the placenta is then grasped and removed manually.

In case of placenta accreta:

- Mild adherence is managed by manual separation and removal.
- Marked adherence may require hysterotomy and attempt of manual removal.
- Placenta increta and percreta: laparotomy with subtotal or total hysterectomy.

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8. Mention different methods for delivery of placenta in case of uterine atony.

A. In case of separated placenta:

1. Ecbolics to induce uterine contractility.
2. Gentle abdominal uterine massage to stimulate uterine contraction.
3. Brandt- Andrews maneuver: controlled cord traction with supra pubic pressure.
4. Manual separation and removal of placenta:

   In case of mild focal adherence without invasion, one hand is introduced inside uterine cavity along umbilical cord, placenta is separated by sheering movement of the palm and fingers to create a plane of cleavage, the placenta is then grasped and removed manually.

B. In case of placenta accreta:

1. Mild adherence is managed by manual separation and removal.
2. Marked adherence may require hysterotomy and attempt of manual removal.
3. Placenta increta and percreta: laparotomy with subtotal or total hysterectomy.

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9. Causes and management of retained placenta.

10. Retained placenta: causes and management.

See before.

Shock & HFN

1. Septic shock in obstetric; etiology, pathophysiology, clinical picture and management.

Etiology:

As pelvic infection is polymicrobial, septic shock may be caused by:

1. Endotoxin producing enterobacteriaceae family espicially E.coli (most common)
2. Aerobic and anerobic streptococci (less common)
3. Bacteroid and clostridium species (uncommon)
4. Exotoxin producing group A b- hemolytic streptococci and also staphylococcus aureus may also be the cause.

Pathophysiology:

Bacterial toxins result in mediators release with:

1. Activation of complement, kinins, and the coagulation system causing DIC & induction of fibrinolytic state with bleeding.
2. Selective VD with maldistribution of blood flow.
3. Leukocytes with platelets aggregation causing capillary plugging.
4. Vascular endothelial injury causing profound capillary leakage.
5. Early septic shock is a form of distributive shock while in late stages it is both distributive and cardiogenic, the end result is septic shock syndrome with multiple organ failure.

Clinical picture:

- Passes into 3 stages of increasing severity:
  1. systemic inflammatory response syndrome SIRS
  2. Sever sepsis, then
  3. Septic shock.
- Multiple organ effects with sepsis & shock:

System		Effect
CNS	**Cerebral**	Confusion, somnolence & coma
	Hypothalamus	Fever, hypothermia
CVS	**BP**	Hypotension (VD)
	Heart	++ CO (early), myocardial depression (late), tachyarrhythmia
Pulmonary		Shunting with hypoxemia Diffuse infiltrates (capillary leak)
Renal		Oliguria, acute tubular necrosis
Hematological		Thrombocytopenia, leukocytosis & DIC

Management: (see pediatrics)

1. Aggresive fluid replacement, oxygenation & ventilation.
2. Administration of vasopressors and inotropic agents; to improve cardiac muscle contractility as dopamine or doputamine.
3. Broad spectrum antibiotics.
4. Removal of infectious source.

N.B.

- Steroids and NSAIDs aren't benificial.

- Immunotherapy is still under research.

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2. Hypofibrinogenemia; causes, diagnosis and management.

Causes:

A. Common causes;

1. Massive blood loss with inadequate replacement.
2. Massive crystalloid or colloid replacement.
3. Placental abruption.
4. Severe PE/eclampsia or HELLP syndrome.

B. Rare causes;

1. Sepsis.
2. Retained dead fetus more than 3-4 weeks.
3. Amniotic fluid embolism.
4. Acute fatty liver of pregnancy.
5. ARDS, acute hemolytic transfusion reactions, autoimmune disease, hematological malignancy & solid tumors.

Diagnosis:

Investigations to detect fibrinolysis:

- FDPs and fibrin D-dimer (normally absent)
- Prolonged PT & PTT (PTT may be normal)
- Low fibrinogen, falling antithrombin3 & low platelets count (CBC should be done)
- Weiner test (clot observation test): 5—10 cc of blood in a test tube are incubated at 37 c
- A, normally a clot forms within 3-8 minutes B, a clot forms after a longer time and dissolve within one hour = hypofibrinogenemia. C, no clot is formed= afibrinogenemia

Management:

1. It must be directed to the underlying cause to reverse defibrination, two wide bore IV cannula are inserted.
2. If PT is more than 1.5 times the control value, transfuse fresh frozen plasma (FFP). The goal is to keep PT within 2-3 sec. Of the value.
3. If fibrinogen level is <100 mg/dl, transfuse cryoprecipitate, ten units of cryoprecipitate are usually given after 2:3 units of plasma, each unit of cryoprecipitate increase the fibrinogen by 10 mg/dl, or give fibrinogen 4-10 g IV.
4. Platelets should be transfused if the count is <200000/ cmm or if clinically significant bleeding occurs with a platelets count between 20000 and 50000/ cmm, each platelet unit increases count by 10000/ cmm, the usual rate of platelet transfusion is 1-3 U/ 10 kg/ day.
5. Antifibrinolytics as EACA 4-6 g IV, or trasylol 2-4 ampoules IV (5 ml ampoule contains 25000 U), is not recommended in most types of obstetric coagulopathy to avoid organ ischemia and infarction unless all above mentioned measures failed to control bleeding.
6. Heparin infusion trying to stop coagulation is commended when vascular system integrity is compromised.

Mnemonic:

First thing is to TERMINATE PREGNANCY but after correction of deficit ..

How to correct?

أنا هادي **plasma** لغاية ما الـ**PT** يبقى **within** ثانيتين تلاتة
هادي **cryo** بعد الـ**plasma** كل وحدتين تلاتة
الـ**cryo** هادي ١٠ و الواحدة تزود ١٠
و الـ**platelets** تزود ١٠ و تتاخد لو أقل من ٢-٣

1. **PT should be within 2-3 seconds from control value.. FFP is given if PT is markedly affected**
2. **Cryopercipitate is given usually after every 2-3 units of FFP**
3. **10 units of cryo are usually given. Each unit increases fibrinogen levels 10 mg/dl.**
4. **1 Platelet unit increases 10,000. And is given if below 20,000 absolute value or 30,000 (20,000-50,000) with significant bleeding or before CS**

And NEVER give heparin or antifibrinolytic.

Membrane and amniotic fluid disorders

Definition, incidence, etiology & complications of polyhydramnios.

Polyhydramnios; causes, complications & management.

Definition:

Excessive AFV above 95th percentile for GA or >2000 ml after 28 week (3rd trimester), by US it is diagnosed when measurement of large verticle AFL pocket is >8 cm or an AFI >25 after 28 week (3rd trimester).

Incidence:

0.5: 1.5% of all pregnancies.

Etiology:

1. **Idiopathic:**

   Most cases are possibly due to an imbalance between AFL production and absorption of an unknown etiology which may not be discovered even after delivery.
2. **Fetal causes:**
   a. Twins and MFP due to large surface producing AFL (placenta & membrane).
   b. Placental tumors as chorioangioma.
   c. FCA; anencephaly, open NTDs, esophygeal atresia, and deudenal atresia.
   d. Hydrops fetalis; due to large placenta & excessive transudation from fetal circulation.
3. **Maternal causes:**
   a. **GDM is the most common cause.**
   b. Rarely, with PE in association with placental edema.

Complications:

1. PTL due to uterine overdistention with fetal prematurity complications.
2. Dysfunctional labour due to malpresentation, macrosomia, PROM and associated MFP.
3. Placental abruption due to sudden decrease intraamniotic pressure after PROM.
4. Risks of associated fetal anomalies or maternal GDM.

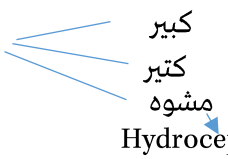
Management:

1. **Mild and moderate polyhydramnios:**
   - Usually chronic and late developing.
   - Conservative management till spontaneous labour pains start.
   - Observation, reassurance, follow up and exclusion of MFP, FCA, and GDM by US.
2. **Severe polyhydramnios:**
   a. Term pregnancy > 37 weeks:

      Termination of pregnancy by either induction of labour or CS according to fetal presentation, pelvic adequacy and bishop score.
   b. Preterm pregnancy < 37 weeks:

      Repeated amniocentesis removing 1 : 1.5 liter every time to prolong pregnancy until lung maturity is established or IM corticosteroids take enough time to enhance lung maturity.

      "Indomethacin (anti-PG) may be used in decreasing amniotic fluid, but avoid its use after 32 weeks as it may lead to intrauterine closure of fetal ductus arteriosus leading to neonatal cardiac and respiratory problems".

	Oligohydramnios	***Polyhydramnios***
Incidence	5 %	1 %
Symptoms	-History of ROM/PE -↓ abdominal girth	-History of respiratory distress/DM -↑ abdominal girth
Signs	↓ Fundal level	↑ Fundal level -Overstretched skin -Ballottement -Fluid thrill -Not felt
Inv.	US: ABCD	
D.D	-Miscalc. -IUGR -Oligo -Malpresentation: Transverse lie/frank breech -IUFD -Missed abortion	-Miscalc. -Poly -عيل  -Fibroid / other pelvic masses -Concealed Acc. He (V. mole)
Etiology	-Fetal → renal agenesis -↑ intake of anti-PG -Maternal → PE & placental insufficiency -PTP -ROM	-Fetal → GIT atresia, anencephaly -MFP -Hydrops -DM & chorangioma -Idiopathic

Pre and Post term pregnancy

1. Post term pregnancy; incidence, diagnosis and management.

Incidence:

- 80% of pregnancies will be delivered spontaneously at or < 40 week.
- 90% of pregnancies will be delivered spontaneously < 42 weeks gestation.
- 6-10% of pregnancies will be prolonged > 42 weeks.

Diagnosis:

1. *Confirmation of gestational age via proper dating of pregnancy:*
   - Obtaining an accurate reliable LMP
   - Reliable 1st trimester US
2. *US evaluation of placental function and fetal growth:*
   - Normal function: normal umblical artery doppler & tendency to LGA fetus.
   - Placental insuffeciency: SGA fetus, IUGR, oligohydraminous, abnormal umblical artery doppler studies.

N.B. Fundal level in Post term pregnancy is normal as fetus increase & size and atb the same time AF decrease in amount

Management:

Pregnancy termination:

- Pregnancy should be terminated whenever:
  - PTP has been confirmed.
  - Or fetal growth disorder diagnosed.
- Induction of labour is weighed against CS according to favourability of the cervix and pressence or abceness of placental insuffeciency.

Bishop scoring method to evaluate favourable cervix for induction

Parameter/score	0	1	2	3
Position	Posterior	Centeral	Anterior	
Consistency	Firm	Intermediate	Soft	
Effacement	0<30	30 : 50%	50:80%	> 80%
Dilatation	Closed	1-2 cm	3-4 cm	> 5 cm
Head station	-3	-2	-1:0	+1:+2

Favourable cervix is centeral, soft, dilated and effaced with a Bishop score **8 or more.**

Management plan:

1. **<u>40-42 weeks without complications:</u>**
   Wait for spontaneous labour pains with weekly assessment of fetal well being.
2. **<u>42 weeks and more:</u>**
   Termination of pregnancy by either:
   a. **<u>Induction of labour (oxytocin, PGL):</u>**
      Favourable cervix (score>8) and normal fetal well-being (NST, Doppler US, liquor amnii, and biophysical profile)
   b. **<u>Elective CS:</u>**
      Unfavourable cervix (score<8) or evidence of placental insuffeciency (non reassuring

NST, abnormal Doppler, biophysical profile or oligohydraminous)

N.B.

Some centers recommended termination at **41 weeks** by **elective CS** in cases where examination is extremely unfavourable for trial vaginal birth as postponing intervention will not add much and may increase fetal risks.

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2. Fetal & neonatal complication of preterm labour (definition & complication).

Definition:

Onset of uterine contraction that lead to progressive cervical dilatation after fetal viability but **before 37 weeks gestation,** PTL is common cause for neonatal morbidity& mortality in relation to prematurity.

Complications: (see pediatrics)

1. **Birth trauma:**
   As intraventricular hge due to head compression.
2. **Respiratory distress syndrome:**
   Due to lung immaturity, decreased surfactant (mainly lecithin) leading to lung collapse.
   N.B.
   Surfactant helps prevention of collapse of terminal air space through normal cycle inhalation & exhalation.
3. **Neonatal sepsis.**
4. **Necrotizing enterocolitis.**
5. **Retinopathy of prematurity.**
6. **Broncho-pulmonary dysplasia.**
7. **Cerebral palsy.**

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3. Management of PTL.

1. *To minimize risks of prematurity:*
   A. *Prophylactic Antenatal IM corticosteroids therapy:*
   Benefits:
   Improve fetal outcome through;
   - Decrease incidence & severity of RDS through stimulation of fetal type 2 pneumocyte surfactant production <34 weeks gestation.
   - Decrease incidence & severity of ICH.
   - Decrease incidence & severity of NEC.

   Dose & types:
   - **Betamethasone:** 2 IM doses **12 mg** each given 24 hours apart
     Or:
   - **Dexamethasone:** 4 IM doses **6 mg** each given **12** hour apart.

   B. *Antenatal IV magnesium sulphate ($MgSO_4$):*
   Benefits:
   Reduce the risk and severity of cerebral palsy in suriviving extremelypreerm neonate < 28 weeks
   Doses:
   Given as IV infusion and takes 4 hours to acheive a steady Mg level in new born.

2. *Tocolytic therapy*

Arrest of **established PTL** is difficult to achieve, however tocolytic agents are used in an attempt to prolong pregnancy and delay delivery in some cases in which PTL is not fully established.

Aim of tocolysis:

To delay labour and prolong pregnancy to benifit from admnistrion of IM corticosteroids and transfer the patient to a center prepared with neonatal ICU capable of dealing with the problem of prematurity.

Contraindications to tocolysis:

1. Obstetric condition as placental abruption, ROM, chorioamnionitis.
2. Fetal condition as fetal distress and lethal anomalies.
3. Maternal condition as sever PE, eclampsia, and advannced cervical dilatation & effacement.

Tocolytic agents:

1. **Magnesium sulphate:**
   - $MgSO_4$ is acompatative inhibitor of calcium given IV infusion route.
   - Toxicity includes muscle weakness & respiratory depression.
   - Doses monitored by maintaining detectable deep tendon reflexes.
   - Antidote: IV calcium gluconate.
2. **B-adrenergic agonists**
   - Mode of action: B2 receptor stimulant result in myometrial relaxation.
   - Side effects: tachycardia, HTN, hyperglycemia and pulmonary edema.
   - Contraindication: cardiac disease, DM, and hyperthyroidism.
3. **Calcium channel blocker**
   - Mode of action: decrease intracellular calcium.
   - Side effects: hypotension & tachycardia.
4. **Prostaglandin synthase inhibitor**
   - Mode of action: decrease smooth muscle activity by decreasing PGL production.
   - Side effects: oligohydramnios, in utero closure ductus arteriosus and NEC.
5. **Anti-oxytocin**
   - Mode of action: act as anti oxytocin by blocking oxytocin receptor.
   - Route; IV infusion with titrated doses.
   - It is recently developed drug that efficiently inhibits uterine contraction.

Duration of tocolysis

1. Short term tocolysis: to gain time for corticosteroids effect and patient transfer to a better equipped center in dealing with prematurity(48/72 hours)
2. Long term tocolysis: is of doutful clinucal value, in addition to many side effects due espicially with prolonged use.

The role of prophylactic IM progesterone admnistration

Weekly IM 17 alpha OH PRG caproate from 20 weeks gestation onwards, has been shown to minimize incidence of PTL in patients with ahistory of PTL.

Normal and abnormal puerperium

1. **Management of normal puerperium (jun. 2013)**
1. **General health care:**
   Physical and mental rest and reassurance.
2. **Observation:**
   For amount of lochia, breast feeding, and occurrence of bleeding or fever.
3. **Balanced diet:**
   Providing at least 2500 kcal/day, rich in fibers to minimize constipation.
4. **Breast feeding:**
   Encourage suckling by the neonate every 2-3 hours together with additional amounts of water, fluids, and juices.
5. **Breast care:**
   Using cleansing and moisturizing agents to avoid infection and nipple cracking.
6. **Abdominal wall exercise:**
   Active exercise starts few days after delivery and throughout puerperium. Abdominal binder is not necessary except in multiparous women with pendulous abdomen.
7. **Perineal care:**
   Keeping a dry pad on the region of perineum is advisable with regular cleansing with antiseptic solutions (Betadine) minimized infection in genital wounds.
8. **Care for episiotomy:**
   Regular cleansing with antiseptic solutions every 4-6 hours together with use of oral antibiotics twice daily for the first 4-6 days.
9. **Bladder care:**
   Encourage the mother for frequent emptying of the bladder till it regains its normal tone and capacity 10. Bowel care: avoid constipation by taking extra fluids and high fiber diet. Some laxatives are allowed without affecting the new born especially locally acting glycerin suppositories.
10. **Immunization:**
    Anti-D immunoglobulin is given to Rh negative mothers that deliver an RH positive baby preferably within the first 24-48 hours after delivery (RhoGAM 300 μg/lM).
11. **Discharge from Hospital:**
    Usually within 24 hours from delivery in absence of maternal complications. CS may need 48 hours before discharge until bowel movements return.
12. **Postpartum exercise:**
    The aim of puerperal exercise is to restore venous circulation, help genital involution, prevention of genital prolapses and restoration of normal posture.
13. **Contraception counseling:**
    Once marital life is resumed a need for a method of contraception is preferable to allow proper pregnancy spacing and family planning.

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2. Metabolic and endocrinal changes during normal puerperium (jun. 2015)

Metabolic changes:

1. **<u>Salt and water:</u>**

   Correction of salt and water retention of pregnancy gradually occurs wit: promotion of diuresis, relief of edema, and rapid weight loss.

2. **<u>Blood:</u>**
   - Reduction in plasma volume occurs with rise in hematocrit level within 1 week.
   - Increase in leucocytes and platelets immediately after delivery followed by a drop to normalize within 1-2 weeks.
   - Increase in clotting factors during 1st 10 days postpartum with an increased risk of deep venous thrombosis (DVT).

3. **<u>Urine:</u>**

   Increased urinary lactose excretion with lactation, and increased blood urinary nitrogen (BUN) due to myometrial muscle autolysis.

4. **<u>Skin:</u>**

   Pigmentation and chloasma gradually disappear but Lininger may persist for a long period after delivery.

Endocrine changes:

1. Sharp decrease in both E & P together with rise in PRL is the main initiative for lactation.
2. Suckling induced signals stimulate oxytocin release which acts as a milk letting factor.
3. Growth hormone, Cortisol, and Thyroxine are slightly elevated and play a role in lactation.
4. PRL induced suppression of GNRH is variable, and result in lactational amenorrhea and decreased fertility according to the intensity of breast feeding.

5.			***Pregnancy***	***Puerperium***
Genital	Uterus	Body	-Height -Weight } ↑ Size -Shape -Consistency -Rotation -Ligaments -Braxton Hicks	↓ Size (+ 4 wks to original size) -Endometrium: 4-6 wks -Ligaments: thicker to prevent prolapse
		LUS	Present	Absent
	Cervix		Blue, soft, mucous plug	Reforms & closes within 3-4 wks
	Vagina		↑ vascularity & <u>leucorrhea</u>	-Rugae reappear in 3 wks -pelvic floor ms ↑ tone in 4-6 wks -<u>Lochia</u>
	Vulva		Varicosities	-Gaping closes within 3 wks -Episiotomy heals within 4 wks
	Ovary		CL & ↑ size & vascularity	

	Breast		Size & vascularity -↑ Pigmentation -2ry areola -Montgomery tunercles -Colostrum-like fluid → E, PRG & PRL	± Engorgment -Lactation: Colostrum followed by milk -Inhibition of ovulation → PRL & suckling
Skin			-Pigmentation: *Chloasma *Linea nigra -Stria -Hair	Gradually disappear but linea nigra persists for a long time
Physiological changes	Metabolic		-Ptn	-ve nitrogen balance
			CHO	
			Fat	
			↑ Weight	↓
			Salt & water retention	-Corrected by diuresis -Urine: ↑ BUN & lactose
	GIT (PRG)		-Vomiting -Heart burn -↓ acidity - GB -Constipation	-Constipation & gaseous distention (Lax ms. & weak pelvic floor) -Anal incontinence OR Complete perineal tear (Overstretch of pelvic floor ms. & lig.)
	Skeletal		-↑ lumbar lordosis -relaxation of joints	
	Mental			PP depression
	Endocrine	Pituitary	↑ Oxytocin & PRL ↓ FSH & LH	↑ oxytocin on suckling & PRL ↓ E & PRG
		Thyroid	↑ total but free is normal	Others: GH, Cortisol & thyroxin slightly elevated
		Parathyroid	↑	GnRH suppression
		Adrenal	↑ total but free is	

			normal	
	Chest		-Hyperventilation (1^{st}) -Dyspnea (3^{rd})	
	Vitals			-Pulse: ↑ in labor & normalize after -Temp.: ↑ < 38°C in 1^{st} day OR breast engorgement on 3^{rd} day
	CVS	Blood vol.	↑ (haemodilution & anaemia)	↓ plasma & ↑ haematocrit within 1 wk
		CO	↑	Normalize
		BP	↑ then ↓ then ↑	Normalize
		Heart	Apex shifted & murmer	
		Veins	Edema & varicosities & piles	
		Constituents	↑ fibronegen, platelets & WBCs	-↑ WBCs & platelets then ↓ to normal within 1-2 wks -↑ clotting factors within first 2 wks
	Urinary	Kidney	↑ GFR	
		Bladder	↑ frequency of micturition	Transient diuresis & SUI & retention (after regional anesthesia)
		Ureter	Stasis → UTI	

Structures 3-4 wks: Ut. Size , Cx reforms, vaginal rugae, gapping of vulva

4-6 wks: Endometrium, Lochia, ms. Tone & episiotomy healing

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3. Causes of puerperal pyrexia (jun. 2005, 2006)

1. Puerperal sepsis.

Predisposing factors:

a. General factors (leading to decreased immunity):
- Anemia
- Antepartum or postpartum hemorrhage
- Diabetes mellitus
- Septic focus.

b. Local factors "in the genital tract":
- Lack of antiseptic measures.
- Premature rupture of membranes.
- Prolonged labour with excessive vaginal examination.
- Retained parts of placenta or membranes.
- Intrauterine manipulations (e.g. manual separation of placenta)
- Instrumental delivery with possible genital tract lacerations.
- Cerclage sutures.

Sources of infection:

a. Exogenous (most important):
   From attendants by droplet infection or from unstaunched instruments.
b. Endogenous:
   Organisms are already present in the genital tract before delivery 'e.g. vaginitis or cervicitis.
c. Autogenous:
   Organisms reach the genital tract from remote site via blood stream tonsillitis or respiratory tract infection, carious teeth.

Causative organisms:

a. Anaerobic streptococci (most common): It is nonpathogenic and in the presence of dead tissue, it becomes pathogenic and produces mild infection.
b. Group A hemolytic streptococci: Causes severe infection.
c. Others: As Staphylococci, E. coli, non-hemolytic Streptococci, Pseudomonas and Cl. Welchii.

2. *Breast infection (mastitis).*
3. *Urinary tract infection (UTI).*
4. *Respiratory system infection.*
5. *Thrombophlebitis and DVT.*
6. *General causes of fever as typhoid or malaria.*

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4. Diagnosis of puerperal sepsis (jun. 2001)

1. *History:*
   a. Pre-existing infection in the genital tract or in the body in general.
   b. Diseases that lower the patient's resistance as diabetes or anemia.
   c. Mode of delivery, premature rupture of membranes and the place of delivery.
2. *Examination:*

a. General: aiming to

- Assess the extent of the disease.
- Exclude other causes of puerperal pyrexia.

b. Discover possible source of infection outside the genital tract. So, look for:

- Vital signs (pulse, temperature, blood pressure and respiratory rate).
- Lower limbs for deep venous thrombosis.
- Cyanosis and purpura (in septicemia).
- Breast, chest and throat (for infection).

c. Abdominal:

- Tenderness and rigidity.
- Uterine size: the uterus may be sub involuted.
- Renal angles for pyelonephritis.

d. Local:

- Lochia: amount and nature (excessive, foul odor).
- Infected lacerations.
- Uterine size and tenderness.
- Pelvic swellings.

3. *Special investigations:*
    a. Swabs from vaginal fornix and cervix for aerobic, anaerobic cultures and antibiotic sensitivity.
    b. Urine culture (Catheter specimen).
    c. Complete blood picture.
    d. Blood culture at the height of the fever.
    e. Doppler ultrasound for venous thrombosis (for all pelvic vessels and IVC).
    f. Chest X-ray for chest infection and blood film for malaria.

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5. Causes & investigations of puerperal pyrexia (jun. 2004, 2007)

Causes:

See before.

Investigations:

See before.

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6. Definition & etiology of puerperal pyrexia (jun. 2010, sep. 2013)

Definition:

A temperature of 38°C or higher which, lasts for > 24 hours and or recur within 24 hours, during the first 21 days postpartum excluding of the first 24 hours. Temperature should be taken by mouth by a standard technique at least four times daily.

Etiology:

See before.

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7. Etiology, clinical picture, treatment of puerperal sepsis (jun. 2014, sep. 2006)

Definition:

It is a type of wound infection of the genital tract that occurs during labour or during the first postpartum 3 weeks.

Etiology:

See before.

Clinical picture:

1. **<u>Infected lacerations:</u>**
    a. Local pain and pyrexia.
    b. wound is hot, red, painful, swollen and covered with purulent exudates.
2. **<u>Local uterine infection:</u>**
    Endometritis and retained products.
3. **<u>Para metritis:</u>**
    a. It starts 7-10 days post-delivery, with mild fever, tachycardia, and deep-seated pelvic pain.
    b. Locally: usually cervical tear with unilateral tender mass in one fornix.
    c. Horse shoe induration around the cervix with extreme tenderness **(jumping sign).**
    d. If abscess is formed it may point in the following site; above the inguinal ligament, the vagina, the rectum, or in the bladder.
4. **<u>Salpingo-oophoritis:</u>**
    a. It starts 7-10 days post-delivery.

b. Generally: there is a deep-seated bilateral lower abdominal pain and tenderness with fever and rapid pulse.
c. Locally: tender adnexa with pain on moving the cervix.

5. **Pelvic thrombophlebitis:**
   a. It occurs in the second week post-delivery.
   b. It starts with pelvic pain, low-grade fever, rapid pulse inconsistent with degree of pyrexia.
   c. If the thrombus extends to femoral vein, the whole limb become edematous, white (phlegmasia alba dolens) and not tender.
   d. If thrombosis extends to IVC, both lower limbs will show massive edema.
6. **Peritonitis:**
   a. Localized pelvic peritonitis: giving local pelvic pain and tenderness with accumulation of fluid in the Cull de sac.
   b. Generalized peritonitis: characterized by abdominal distension, vomiting, deterioration of the general condition with shifting dullness.
7. **Septicemia:**
   a. The most serious complication of puerperal sepsis.
   b. Occurs in the first week post-delivery.
   c. There is high shooting fever with tachycardia inconsistent with degree of pyrexia plus rigors.
   d. It is usually associated with symptoms and signs of generalized peritonitis.
   e. Finally, skin eruptions with drowsiness and septic shock occurs.

Treatment:

- ttt is very similar to PID
- + General: observation, fowler's position, diet
- Medical: 3 A (analgesics, antipyretics, antibiotics)
- Surgical

1. **General measures:**
   a. Isolation.
   b. Light nutritive diet, vitamins, iron and plenty of fluids.
   c. Frequent measurements of vital signs.
   d. Analgesics and antipyretics to assure good sleep.
2. **Antibiotics:**
   A combination of antibiotics is given till the results of culture and sensitivity are obtained:
   a. Cephalosporins for gram +ve organisms.
   b. Gentamycin for gram -ve organisms.
   c. Clindamycin or Metronidazole for anaerobic organisms.
3. **Promotion of Drainage:**
   a. Fowler's position (Semi-sitting with flexed knees).
   b. Ergometrine, which increases uterine ability to expel retained placental parts or membranes.
   c. Removal of retained parts in the uterine cavity (under anesthesia & antibiotic cover).
   d. Removal of sutures in infected wounds.
   e. If pelvic abscess: surgical drainage if antibiotics fail to cure.

4. **Treatment of Complications:**
    a. Septic thrombophlebitis and DVT:
        - Antibiotics.
        - Anticoagulants.
        - Limb immobilization till fall of the temperature.
    b. Generalized peritonitis:
        - No oral feeding.
        - IV fluids.
        - Fix a Ryle tube for gastrointestinal drainage.
        - Massive IV antibiotics.
    c. Septic shock:
        See shock in obstetrics.

---

8. Discuss post-partum infection (jun. 1997)

As mentioned above.

Fetal surveillance

1. Mention items of fetal biophysical profile.

1. Fetal tone (flexion attitude of fetal limbs, head and body)
2. Fetal body movements (flexion/ extension limb and body movements)
3. Fetal breathing movements (expansion movements of fetal abdomen)
4. Amniotic fluid volume or index.
5. NST rise of 15 bpm, for 15 secs, twice in 15-20 minutes duration.

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2. Non Stress Test (NST).

Idea:

To test FHR changes in response to fetal movements, FHR are recorded by electronic monitoring using a special apparatus with duplex US probe attached to maternal abdomen, fetal movements are reported by the mother who presses on special button concomitant with each fetal movement.

Procedure, by external CTG:

- Basal FHR is recorded and its changes in response to fetal movements are detected.
- Duration of the test: FHR recording over 20 minutes observation period, the test may be extended for another 20 minutes if fetal movement is insufficient.

Response to NST:

1. Reactive: normally a rise in FHR of at least 15 bpm, for at least 15 sec, will occur at least twice within aperoid of 15:20 minutes testing.
2. Non reactive: no FHR changes or changes less than normal.

Managment according to NST:

1. Reactive: repeat every week.
2. Non reactive: further fetal evaluation:
   - US Biophysical profile.
   - Color doppler velocimetry studies (umbilical & cerebral artery)
3. OCT.

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3. Methods of assessment of fetal well-being during third trimester of pregnancy.

1. *History:*

   Careful history taking may reveal the cause of fetal distress as PE, Post term ...
2. *Clinical signs suggestive of SGA fetus or oligohydramnios:*
   - Poor maternal weight gain during ANC follow up (normal = 0.5 kg/wk >20 wks)
   - Small abdominal girth with undersized uterus (fundal level < GA)
3. *Antepartum fetal surveillance:*
   a. **<u>Daily fetal movement count (DFMC)</u>**
      - Recorded 2 days each week, after weeks.
      - More than 10:20 movements within 10:20 hours indicates good fetal movements.

- If DFMC is decreased, further fetal evaluation is recommended (NST & US)

b. <u>NST as previous question.</u>

c. <u>US biophysical profile:</u>

- It is simple test based on clear US parameters that can pick up those fetuses at risk of hypoxia, each test parameter is given score (0/2)
- **<u>Timing of BPP:</u>**

  Any time in 3rd trimester and can be freely repeated if needed.
- **<u>Parameters:</u>**

  As previous question.
- **<u>Interpretetion:</u>**

  Each item is scored either 0 or 2, with maximum 10/10
  - Scores of 8 to 10 denote a normal fetal well-being, with normal fetal PH.
  - Scores of 8/10 need repeat the test and / or adding Doppler US evaluation.
  - Scores < 8 suggest sever hypoxia, termination of pregnancy should be considered.
  - Scores < 6 denote sever fetal acidemia, with severely compromized fetal outcome.

N.B. BPP score of dead fetus = 2 (of AFI) & not 0

"The modified BPP Score; it combines NST with amniotic fluid index, it is simpler and quicker than complete BPP, seems to have same sensitivity for detecting fetal compromise, if NST is non reactive, complete BPP should be done".

d. <u>Doppler studies of fetal blood flow:</u>

Measurement of the resistance to fetal blood flow within umbilical & middle cerebral artery yields excellent information about state of fetal organ perfusion.

- High resistance in umbilical artery is concomitant with placental insufficiency, while low resistant in fetal middle cerebral artery points to vascular shift & brain sparing, suggestive of hypoxia.
- Absent or reversed end diastolic flow in umbilical arteries doppler flow studies denotes severely compromised fetus that needs urgent delivery.

N.B.

- *FHR acceleration = relation to fetal movement*
- *FHR deceleration = relation to uterine contraction*
- *Early deceleration = vagal response to fetal head compression by increased IUP and it is normal.*

Disproportionate fetal growth

1. **Compare between symmetrical & asymmetrical IUGR regarding; etiology and US findings.**
2. **IUGR of fetus; etiology& management.**
3. **IUGR; etiology, diagnosis and management.**

	Symmetrical (type I)	***Asymmetrical (type II)***
Etiology	1. Fetal infections. 2. Congenital malformation; as serious cardiac malformation. 3. Skeletal anomalies; as osteogenesis imperfecta. 4. Chromosomal anomalies triosomy espicially chromosome 13, 18 and 21 cause the most severe forms of IUGR. 5. Poor maternal weight gain espicially after 28th week of gestational age is commonly associated with IUGR.	1. Vascular diseases as chronic hypertension & PE. 2. Chronic renal disease; renal insuffeciency. 3. Chronic hypoxia; fetus with mother of cyanotic heart disease show frequent IUGR. 4. Placental and cord abnormalities: a. Chronic fecal placental abruption, extensive infarctions and chorioangioma. b. Marginal and velamentous insertions of the cord .
US findings	1. Weight is less than 10% (all measures less than 10%) 2. No altered AC/HC ratio Aetiology may be detected (anomalies? Features if trisomy) 3. Polyhydramnios may be present (due to anomaly or syphilis)	1. Decreased BPD & AC measurements < 10th percentile for GA or altered AC/HC ratio. 2. Estimated fetal weight < 10^{th} percentile for GA. 3. Oligohydraminos associated with IUGR. 4. Accelerated placental age (early grade 3 placenta < 34 week with calcification) 5. Abnormal umbilical and cerebral artery doppler flow indices; decreased umbilical and preserved or increase cerebral vascular flow in asymmetrical IUGR.
Diagnosis	1. Proper pregnancy dating history of LMP, calculation of GA and expected date of delivery. 2. Symphysial fundal height measurement; between 20 and 34 weeks gestation, the longitudinal distant measured	

	from symphysis pubis to uterine fundus in Cm roughly coincides with weeks of gestation, if the measurement is less than 2 cm from expected height, inappropriate fetal growth is suspected. 3. US as before.	
Management	**For both; near term** Prompt delivery is likely to afford the best outcome for the fetus who is growth diagnosed as near term, whether symmetrical or asymmetrical. **Preterm symmetrical;** 1. Exclusion of important fetal congenital and or chromosomal abnormalities by fetal anatomy scan, amniocentesis or cordocentesis if indicated. Manage accordingly. 2. Screening for TORCH infections & treatment accordingly. 3. Evaluation of fetal wellbeing: a. Daily fetal movement count DFMC. b. Non stress test NST c. Biophysical profile score, twice weekly. d. US CD: serial Doppler velocity waveform measurements for maternal uterine, umbilical, middle cerebral and renal arteries.	**Preterm asymmetrical** Antepartum fetal surviellance is started and if it shows; a. Fetus isn't severly affected pregnancy is allowed to continue with repeated testing. b. Fetus is severely ill; termination of pregnancy is usually offered otherwise IUFD will occur.

4. Define IUGR, mention causes of symmetrical IUGR.

Defintion:

It refers to any fetus that fails to reach its full growth potential (<10th percentile weight according to fetal growth curve).

Symmetrical IUGR (type1) usually results from fetal injury very early in development, it is thus intrinsic to the fetus and constitutes about 20% of IUGR cases.

Causes:

As previous question.

5. Fetal macrosomia; definition, risk factors, diagnosis, management and prognosis.

Definition:

Fetus with absolute birth weight of either > 4000g or > 4500 g.

Risk factors: (DOPE)

1. **Maternal Diabetes** (the most common risk factor).
2. **P**ost term pregnancy.
3. Maternal **O**besity (a pregnancy weight > 90 kg) and increased maternal height.
4. Multiparity and prior macrosomic infant.
5. **E**rythroblastosis fetalis or hydrops fetalis.

Diagnosis:

1. Clinical estimates of fetal size, based on leopold's manoeuver or fundal height measurements are often unreliable and are markedly affected by clinical experience and maternal obesity.
2. US estimates of fetal weight are reasonably accurate with only 15:20% error range in correlation to actual fetal weight after delivery, however US estimates of fetal weight are more difficult in obese women.

Management:

1. **Prevention:**
   - Meticulous control of maternal diabetes.
   - Obese women should loose weight before conception and once pregnant should gain less weight than average patient.
2. **Management:**
   - During pregnancy: serial US to chart fetal growth, and exclude anomalies.
   - Induction of labor >37 weeks: to minimize the need for CS delivery this approach is at least controversial and should be reserved only to highly selected cases.
   - Elective CS if USEFW is > or equal 4250 espicially in diabetic pregnancies.
   - Vaginal delivery is attempted anaethesia staff and neonatal resuscitation team must be available, assisted instrumental delivery must be avoided.

Prognosis:

1. **Fetal complications:**
   - IUFD.
   - Birth trauma.
   - Hypoglycemia, polycythemia, hypocalcemia & jaundice.
2. **Maternal complications:**
   - Higher incidence of CS deliveries.
   - Traumatic injuries of birth canal, postpartum hemorrhage & puerperal infections.

Asphyxia

1. Management of intrauterine asphyxia.

1. Elimination of the cause of asphyxia if possible:
   - The patient should be turned onto her side. This may relieve either umblical cord compression, or alleviate poor return of blood to maternal heart caused by occlusion of maternal aorta or IVC by gravid uterus.
   - Oxytocin infusion, if started, should be discontiued to decrease uterine activity and improve placental perfusion.
   - Any hypotension should be corrected by position change, intravenous hydration or vasopressor treatment if sever hypotension due to induction anathesia develops.
2. Oxygen 100% should be admnistrated to motther by facemask.
3. Atropine given to mother may be benificial in some cases of fetal bradycardia.
4. If FD is relieved: careful observation by EFHR monitoring till delivery is accomplished.
5. If FD isn't releived within several minutes; immediate delivery is indicated;
   - If the cervix isn't fully dilated: CS is immediately performed regardless presentation.
   - If the cervix is fully dilated delivery by:
     - Forceps: in cephalic presentation, engaged head, CPD excluded.
     - Breech extraction: in breech presentation.

---

2. Define fetal asphyxia & mention causes of FD.

Definition:

State of inadequete oxygenation and inadequete elimination of CO2, which is allowed to be continued, will result in metabolic acidemia (umbilical arterial blood Ph < 7.2)

Causes:

1. *Maternal causes:*

   Conditions leading to imperfect oxygenation of maternal blood:
   - Severe anemia, hge & shock, respiratory failure and heart failure.
   - Eclamptic convulsions, advanced pulmonary T.B, pneumonia and pulmonary edema.
2. *Placental causes:*
   - **<u>Placental compression:</u>**

     Interfering with its circulation as in tonically contracted uterus, prolonged labour after rupture of membrane or as a method of control of bleeding in placenta previa.
   - **<u>Placental separation:</u>**

     As in accidental hge.
   - **<u>Placental insuffeciency:</u>**

     Extensive degeneration, multiple infarction& abnormally small placenta.
3. *Causes in umbilical cord:*

   Obstruction of the circulation which may be due to:
   - Tight coils arround the neck.
   - True knots of the cod.
   - Prolapsed cord.
   - Compression of the vesseles by hematoma of the cord or blades of the forceps.

- Rupture of vasa previa.

4. *Prolonged fetal head compression:*

   This will cause edema & ischemia which interfer with blood supply of the medulla leads to depression of respiratory center, prolonged compression may be due to:

   - Contracted pelvis.
   - Rigid perineum
   - Intracranial hge.
   - Forceps application for along time.
   - Depressed fracture.

---

3. Definition & diagnosis of FD during labour.

Definition:

As previous question.

Diagnosis:

1. **<u>Abnormal FHR</u>**
   - Bradycardia FHR <100 bpm; most dangerous sign.
   - Tachycardia FHR> 160 bpm
   - Irregular FHR patterns.
2. **<u>Delayed of return of FHR to their normal rate after uterine contraction.</u>**

   FHR normally slow down during uterine contraction and returns rapidly to normal after it ends.
3. **<u>If continous FHR monitoring and CTG would suggest FD</u>**
   - Late deceleration.
   - Variable deceleration.
   - Loss of beat to beat variation in FHR.
   - Sinusoidal FHR pattern.
4. **<u>Passage of meconium in cephalic presentation:</u>**

   Due to relaxation of anal sphincter due to anoxia and increased intestinal perstalsis.
5. **<u>Fetal acidosis:</u>**

   Detected by taking blood sample the scalp of the fetus during labour Ph< 7.2 indicates fetal asphyxia normal (7.25:7.35)

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4. Etiology of asphyxia of new born (Post-natal asphyxia).

1. Persistant of a state of sever intrauterine asphyxia after birth.
2. Obstruction of respiratory passage by mucus, amniotic fluid, blood or meconium.
3. Paralysis of cardiorespiratory centers, due to cerebral hge.
4. Depression of respiratory center by drugs (morphine & pethidine) or narcotic and anathetic given during labour.
5. Congenital malformation as congenital atelectasis of the lungs or congenital abnormalitiesin respiratory or circulatory system.
6. Prematurity
7. Congenital debility.

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5. APGAR score.

- Clinical assessment of severity of asphyxia in the newborn
- In this system the child's condition is assesed one minute and five minutes after birth utilizing five features. Either 0, 1, 2 is given to each of the five features with a total degree out of ten:
  1. **A**ppearance (color)
  2. **P**ulse (heart rate)
  3. **G**rimace (reflex irritability)
  4. **A**ctivity (muscle tone)
  5. **R**espiratory (respiratory effort)

	0	**1**	**2**
Appearance (colour)	Blue or pale	Body pink & limbs blue	All pink
Pulse (HR)	Absent	<100	>100
Grimace (reflex irritability in response to catheter in nose)	No response	Grimace	Cough or sneezing
Activity (muscle tone)	Limp	Some flexsion of extremies	Active movement
Respiratory (respiratory effort)	Absent	Slow, irregular	Strong cry

Apgar score should be done at one & five minutes after birth:

- One minute APGAR score: determine the need for immediate resuscitation.
- 5 minute Apgar score is useful index of the effectiveness of resuscitation methods, when low is indicative of infant at higher risk of morbidity & mortality (prognosis)

Importance of Apgar score system:

It determines the prognosis helps selection of management and evaluation of newborn.

---

6. Mention technique of active resuscitation of asphyxia neonatorum.

"See pediatrics"

- Resuscitation of the new born is an excellent example of a team work that needs cooperation and harmony between each member, namely obstetrician, the neonatologist, the anathesiologist, and the nursing team.
- The first few minutes in new born may be crucial in determining both its potential for survival and its future health performance which may not be revealed except after several months or even years.
  1. *Clearing the air passage*
     - Holding the fetus from the feet and aspiration mucus from the mouth & upper pharynx by a rubber catheter.
     - **N.B** the infant's head shouldn't be lowered if intracranial hemorrhage is suspected.
  2. *Warming the infant:*

     Warming is necessary to decrease oxygen requirement and avoid attack of apnea.
  3. *Oxygen therapy (when necessary) may be supplied by:*
     - Small mask or stream in front of the mouth & nose (O_2 saturation)

- Endotracheal tube is indicated if:
  - 1 minute Apgar score < 3
  - Persistant apnea.
  - Persistant bradycardia < 100

4. *Artificial respiration by;*
   - Endotracheal tube with intermittent positive pressure insufflation.
   - Mouth to mouth breathing until endotracheal tube is available.
5. *Cardiopulmonary resuscitation:*

   Cardiac resuscitation together with endotracheal intubation (or mouth to mouth breathing):
   - No audible heart beats or Heart rate < 100
   - Thumbs are put at the junction of lower and middle third of sternum to compress the chest gently 100 times per minutess
6. *Use of drugs:*
   - Nalorphine .5 gm into umblical vein if asphyxia is due to morphia.
   - Sodium bicarbonate 8.4% if the infant develops acidosis with sever asphyxia.
   - Epinephrine: may be used for cardiac resuscitation (if absent heart beats) up to .5 cc are injected either into umblical vein or intracardiac.
   - Antibiotics: to prevent pneumonia especially if resuscitation has been difficult.

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7. Diagnosis & managment of asphyxia in new born.

Diagnosis:

APGAR score (See before).

Management:

1. *Prophylaxis:*
   a. Proper ANC for early detection of cases at high risk for FD and ANC.
   b. Proper intranatal care:
      - Careful observation of FHR, avoid prolonged and traumatic labour (e.g forceps)
      - Proper oxygenation during anethesia, and avoid morphia within 3 hours before labour.
      - Episiotomy to shorten head delivery when necessary, espicially in breech & prematurity.
      - Proper delivery of after coming head.
      - Vitamin K for all premature & breech delivery.
      - Aspiration of the mucus and meconium from fetal larynx before it starts breathing.
2. *Active managment:*

   Active resuscitation of new born: see before.

---

8. Asphyxia neonatorum; causes, types & management.

Types:

1. *Primary apnea:*

   It represents the initial phase of apnea and is associated with a decrease in the heart rate (bradycardia) and loss of muscle tone (hypotonia). In such cases with simple stimulation

and exposure to oxygen, normal respiration is resumed.

2. *Secondary apnea:*

   If oxygen deprivation persists, it will lead to irregular gasping, followed by secondery apnea. It is manifested by further degree of heart rate, BP, and muscle tone. Secondary apnea willnot respond spontaneously to stimulation and oxygen, but assisted ventilation is essential, otherwise neonatal death occurs.

N.B.

- Clinically, primary and secondary apnea are indistinguishable.
- The older calssification of asphyxia neonatorum into asphyxia livida and asphyxia pallida has been abandoned and is nowadays considered obsolete.

Causes & management:

See before.

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9. What are the steps followed for active resuscitation of asphyxia neonates & what are drugs should be at hand for resuscitation?

See before.

Birth injuries

1. Intracranial hemorrhage of newborn.

Etiology:

1. *Prematurity, due to:*
   - Fragile blood vessels.
   - Hypoprothrombinemia.
   - Increased susceptibility to birth trauma.
2. *Breech delivery, due to:*
   Sudden compression and decompression of cranial bones.
3. *Excessive compression, due to:*
   - - Excessive moulding, in cases of cephalopelvic disproportion.
   - - Excessive compression by forceps (oblique application or persistent locking) .
4. *Asphyxia:*
   Leads to hypoxia of the walls of blood vessels with subsequent leakage.
5. *Haemorrhagic disease of the newborn.*

Sites of hemorrhage:

1. Intra-ventricular haemorrhage.
2. Intra-cerebral haemorrhage.
3. Subdural haemorrhage.
4. Subarachnoid haemorrhage.

Clinical picture:

"C-C-I-I (coma, convulsions, meningeal irritation, inc. intracranial tension)"

1. Stillbirth or neonatal asphyxia.
2. Drowsy, refuse suckling with sudden sharp cry.
3. Convulsions and rigidity.
4. Tense bulging anterior fontanel.
5. Vomiting.

Differential diagnosis:

1. Asphyxia neonatorum.
2. Neonatal convulsions.

Investigations:

Brain CT scan.

Treatment:

1. *Prophylactic treatment:*
   a. **<u>Breech delivery:</u>**
      - Ensure full cervical dilatation before attempting VD.
      - Prepare your patient for prolonged delivery.
      - Episiotomy.
      - Assisted delivery whenever needed.
   b. **<u>Premature delivery:</u>**
      - Proper management of breech delivery by piper Forceps and episiotomy to avoid

rapid compression decompression injury

- Vitamin K injection antenatal to mother to avoid ICHge (and postnatal to neonate)
- Avoid holding baby upside down after birth
- Avoid excessive handling of neonate afterbirth
- Careful forceps application
- Episiotomy even if not breech

c. **<u>Vitamin K for the mother</u>** (10 mg lM early in labour when we suspect difficult delivery).

d. **<u>Careful forceps application.</u>**

2. Active treatment:

a. Resuscitation with minimal handling.
b. Chloral hydrate, Magnesium sulphate so% 1 cc and Luminal.
c. NaCl per rectum for oedema.
d. Dehydrating measures even lumbar puncture.
e. Vitamin K for the foetus (1 mg IM).

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2. Compare cephalhematoma & caput succedaneum.

"Check pediatrics"

	Caput succedaneum (sub-periosteal hematoma)	***Cephalhematoma***
Cause:	- Obstructed labour. - Ventouse.	- Forceps or ventouse - Difficult delivery through contracted pelvis
Appearance:	At birth	Few hours after birth
Characters		
Edges: *Skin:* *Sutures:*	Ill defined. May be ecchymotic. Overlap sutures & cover more than one bone.	Well defined . Normal No overlap & limited to one bone.
Complications.	No.	Calcification, infection& hyperbilirubinemia.
Treatment.	No treatment (disappears after 1-2 days).	Expectant management (disappears within few weeks).

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3. Cephalhematoma of newborn.

See Q2.

Placenta and umbilical cord

1. **Functions of placenta**
2. **Mechanism of nutrients transfer through placenta**
3. **Endocrinal function of placenta**

1. *Transfer of nutrients:*
   a. **Simple diffusion**
      - According to concentration gradient
      - Affect (water,O2 , CO2 , waste product small particle <1000)

   b. **Facilitated diffusion (diffusion is faster)**
      - According to concentration gradient + carrier
      - Affect (glucose, ketones, fatty acid, steroid, fat soluble vitamins)

   c. **Active transport**
      - Against concentration gradient + energy
      - Affect (amino acid, Ca+2 , iron)

   d. **Pinocytosis**
      Large molecules as immunoglobulin, LATS

2. *Endocrinal function:*
   a. **Human placental lactogen (main metabolic hormone of pregnancy)**
      - HPL is a large protein hormone secreted by syncytiotrophoblast.
      - Start to appear in early pregnancy and steadily increase until labor
      - Maintain:
        - Free fatty acid flow to fetus
        - Amino acid flow to fetus → inhibit gluconeogenesis
        - Continuous glucose flow to fetus
        - Induce maternal hyperglycemia through stimulation of glycogenolysis and inhibit peripheral gluconeogenesis
      - Increases in:
        - Twin
        - Rh isoimmunization
        - Diabetes
        - Prolonged fasting
      - Decreases in all cases of placental insufficiency

   b. **Human chorionic gonadotropins**
      - Glycoprotein secreted from suncytiotrophoblast
      - Consists of:
        - Alpha subunit similar to all anterior pituitary hormones
        - Beta subunit specific to hCG
      - Starts its secretion a few days after fertilization
      - Reaches an peak 8-10 weeks then decrease slightly till 20 weeks and maintained till

the end of pregnancy where it disappears few days after delivery

- Its level double every time every 48 weeks in the 1st 6-8 weeks of pregnancy
- Functions:
  - Maintain the CL function till the development of placenta
  - Used as a screening marker of choriocarcinoma and follow up of GTD
  - High in V. mole, choriocarcinoma, MFP, RH isoimmunization, down
  - Low In abortion, ectopic

c. **Estrogen**	d. **Progesterone**
Steroid hormone secreted from fetal placental unit (fetus and placenta)	Steroid secreted from syncytiotrophoblast Increase through the pregnancy and decrease a weak before labor
• Hyperplasia of uterine muscle • Increase uterine blood flow • Stimulate oxytocin receptor formation • Increase uterine excitability	• Hypertrophy of myometrium • Maintain secretory activity of endometrium • Inhibit uterine activity through the pregnancy • Play role in immunological maternal fetal acceptance • Responsible for uterine softness
• Simulate development of breast duct system • Stimulate prolactin synthesis • Inhibit pituitary gonadotropins • Inhibit ovulation	• Stimulate development of alveolar system

3. *Immunological function in maternal acceptance of fetus.*

---

4. Discuss abnormalities of placenta in shape

1. *Membranous placenta (diffuse placenta thin large):*
   - May implant on lower segment (PL PRV) cause antepartum Hge
   - May be retained after labor cause postpartum Hge
2. *Bilobular or multi lobe:*
   2 or more lobes connected by placental tissue
3. *Bipartitite and multi-partitite placenta (part):*
   2 or more separate parts almost equal in size connected by membrane
4. *Succenturiate placenta:*
   - Large part and small past separated connected by membranes
   - May be retained causing PPH (we will find circular gap in membrane from which vessels pass to edge of main placenta)
5. *Circumvallate placenta:*
   May lead to IUGR, accidental hge and PTL
6. *Fenestrated placenta:*
   Gives false impression that there is retained placenta

---

5. Discuss abnormalities of umbilical cord

1. *Abnormal insertion:*
    - Marginal insertion in placenta (battle door) in 8% of pregnancy
    - In membranes (velamentous insertion) in 2% of pregnancy
2. *Abnormal length:*
    - Too long > 60 cm (cause cord prolapse-true knots-coiling around fetus)
    - Too short <35 cm:
        - True short or apparent in case of coiling around fetus neck)
        - Cause intra partum hge due to premature separation of placenta and prolonged 2nd stage, invasion of uterus)
3. *Knots of cord:*
    - False knot → collection of wharton's jelly
    - True knot → result in asphyxia (due to interference of circulation)
4. *Vasa previa (placental vessels pass below presenting part):*
    - In case of velamentous insertion, low lying placenta
    - Rupture cause fetal hge

Physiological changes during pregnancy

1. **Lower Uterine Segment: Characteristics & Obstetric important changes in uterus during pregnancy (1998)**

- The LUS is formed from the isthmus
- It starts to be formed from the **4th month**, to reach 10 cm at full term.
- Obstetric significance of the LUS:
  1. Site of lower segment cesarean section **(LSCS)**
  2. Site of **rupture** in obstructed labor.
  3. Site of implantation in cases of **placenta previa.**

---

2. Changes in uterus during pregnancy (1998)

1. *The body of the uterus:*
   - The Height: The height increases from 7.5 cm to reach **35 cm** at term, due to:
   - oestrogen and progesterone leading to myometrial hypertrophy and hyperplasia.
   - The contents of the uterus i e. foetus, placenta and amniotic fluid .. etc.
   - The Weight: The weight increases from 50 gm to reach **1000 gm** at term.
   - The Shape: The shape of the uterus is globular till 14 weeks then it becomes **pyriform**
   - The uterine ligaments: Show **hypertrophy.**
   - Dextro-rotation: The uterus **is tilted and twisted to the right** in 80% of cases.
   - **Braxton-Hicks contractions**: Irregular, painless con- tractions that help placental circulation.
2. *The lower uterine segment :*

   See the previous question.
3. *The cervix:*
   - Oedema and congestion; it becomes soft "**Goodell's sign**" and bluish "**Chadwick sign**"
   - Mucus plug, which consists of the cervical mucus closing the cervical canal.
   - Hormonal erosion may occur, it disappears spontaneously 3-6 months after labour .
   - Cervical ripening mainly at the end of pregnancy due to oedema and decreased collagen caused by prostaglandins.

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3. Differences between the upper and lower uterine segments.

Upper uterine segment (UUS)	Lower uterine segment (LUS)
• Active during labour . • Contracts and retracts to become shorter & thicker. • Thick wall, consists of 3 muscle layers: - Outer longitudinal. - Middle oblique (for haemostasis). - Inner circular. • Covered by adherent peritoneum. • The membranes are firmly attached.	• Less active during labour . • dilates and stretches to be longer and thinner . • Thin wall, consists of 3 muscle layers: - Outer longitudinal. - Middle oblique layer is defective. - Inner circular. • Covered by loose peritoneum. • The membranes are loosely

	attached.

4. Changes in CVS in Pregnancy (june 99, 2005, 2016, sep. 2014).

1. *The blood volume:*
   - Total blood volume increases almost **40%** by the end of 32nd week of pregnancy.
   - Plasma volume increases by 45% while RBCs increase o 15% leading to **hemodilution**.
   - Hemodilution causes physiological anaemia and hyperdynamic circulation **(functional murmurs**)
2. *The cardiac output (CO):*

   The CO increases to a peak at the 32nd week of pregnancy (about 40% increase) which remains elevated till the end of pregnancy. Increased CO is due to an both increased stroke volume (the main reason) and increased in the heart rate (15%) towards the end of pregnancy.
3. *The blood pressure (BP):*
   - A normal BP in general has a mean of **120/80**. During pregnancy a slight drop in the BP occurs in the 2nd trimester due to opening of arterio-venous shunts at the placenta.
   - Hypertension **(HTN)** is diagnosed in pregnancy when the BP is **140/90 or more**, on two occa- sions, 6 hours or more apart.
   - **Supine hypotension syndrome**: In the 2nd half of pregnancy, maternal hypotension occurs in the supine position due to pressure of the pregnant uterus on the inferior vena cava. This leads to decreased venous return and cardiac output .
4. *Cardiac changes:*
   - Displacement of the apex of heart in late pregnancy, to the 4^{th} intercostal space, due to eleva- tion of the diaphragm and the heart by the fundus of the growing uterus.
   - Functional murmurs are detected and are usually systolic.
5. *Venous stasis:*

   Pressure of the uterus on the pelvic veins leads to ankle oedema, varicose veins and piles.
6. *Blood changes:*

   Increased fibrinogen (up to 600 mg%) and WBCs (leucocytosis up to 12,000/mm^3).

---

5. Breast changes during pregnancy (june 2011).

Due to the effect of oestrogen (E) progesterone (P) & prolactin (PRL).

- Increased size and vascularity (warm, tense and tender).
- Increased pigmentation of the nipple and areola
- 2ry areola appears (light pigmentation around the 1ry areola)
- Montgomery tubercles appear on the areola (dilated sebaceous glands).
- **Colostrum-like fluid** is expressed at the end of the **4th month.**

---

6. Sure signs of pregnancy (june 2001).

Diagnosis of pregnancy is based on the triad of:

1. Delayed Cycle (missed period)
2. Positive Pregnancy test (urine or serum)
3. Pelvic Ultrasound (TAS/TVS) showing intrauterine pregnancy

1. *Delayed menstrual cycle (missed period):*
   - A missed period is the **earliest** symptom of pregnancy.
   - **Cause**: persistent corpus luteum **(CL)** function .
   - **Mechanism: hCG** produced by the proliferating trophoblasts stimulates CL for continuous production of both oestrogen (E) and progesterone (P), thus preventing hormone withdrawal and endometrial shedding that normally occur in absence of pregnancy.
   - Associated symptoms in **1st trimester**: as nausea, with or without vomiting, frequency of micturition, fatigue, weakness and lack of concentration, breast enlargement.
   - Associated symptoms in **2nd trimester**: gradual abdominal enlargement and perception of foetal movements **(quickening)** .
2. *Positive pregnancy tests:*

   Laboratory tests for diagnosis of pregnancy are based on the detection of hCG in urine or blood samples of pregnant women.
   - **Urine ELISA tests:** Enzyme Linked Immunosorbent Assay slide tests are simple, cheap, accurate, and readily available. A positive result will be detectable in **the first 48 hours** of a missed period.
   - **Serum B-hCG tests:**
     - It is **the earliest available method** for accurate diagnosis of pregnancy. It **is superior** to the urine test .
     - The test is positive within 1st 48 hours of a missed period (levels > 50 mIU/ml).
     - B-hCG levels rise sharply in the first 8 weeks of pregnancy, nearly doubling every 48-58 hours .
     - Levels usually > 1500 mIU/ml. by the end of the 5th week, and >10,000 mIU/ml by end of the 6th week (calculated from the LMP).
     - B-hCG may also serve as an early predictor of abnormal pregnancies where poorly rising levels may be the first indicator of a pregnancy complication, as abortion or ectopic pregnancy. Abnormally highly rising levels are associated with vesicular mole and choriocarcinoma.
3. *Ultrasound diagnosis of pregnancy:*

   TAS and TVS are the mainstay in the diagnosis of an intrauterine pregnancy. US is safe, cheap, readily available, and easy to interpret.

   a. First trimester US:
   - 5-6 weeks : Gestational sac < 2 cm with no embryonic echoes .
   - 7-9 weeks : Embryo with positive heart pulsations.
   - 10-13 weeks: Foetus with early trunk movements
   - Measurements of foetal crown to rump length **(CRL**) give the most accurate dating of pregnancy, and hence the most acceptable expected delivery date (EDD).

   b. Second trimester US:
   - Confirmation of foetal life (FHR)
   - Foetal biometry for estimation of gestational age, foetal weight, and growth patterns.
     - Biparietal diameter (BPD)
     - Abdominal circumference (AC)
     - Femur length (FL)

7. Benefits of measurement of serum hCG (sep 2008).

See the previous question.

ANC & High risk pregnancy

1. Enumerate routine lab investigations in the first trimester of pregnancy (sep 2016).

1. Blood group & Rh typing, to identify Rh negative patients.
2. CBC: for Hb%, WBCs& platelets.
3. Blood sugar level: random blood glucose, or fasting and 2hrs postprandial levels.
4. Complete urine analysis: for character, pH, albumin, sugar, pus cells, RBCs, epithelial cells etc...
5. Others as TORCH antibodies IgG and IgM, AIDS, hepatitis B&C if necessary, especially in first pregnancy.

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2. Objectives of antenatal care (june2015).

1. Early detection &possibly prevention of complications specific to pregnancy, as preeclampsia, eclampsia & obstetric hge.
2. -Detection& management or at least amelioration of any medical disorder complicating pregnancy as anemia , DM, cardiac, renal or endocrine disorders.
3. Detection of complications which may affect labour as disproportion and malpresentations.
4. Education of the patient and her family about pregnancy, labour and delivery, the hygiene and diet in pregnancy and the warning or alarming symptoms that necessitate consultation.
5. Finally classification of patients into normal or high risk to put the plan of proper management.

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3. Causes of maternal mortality (june 2010, 2013).

1. Obstetric hemorrhage (29.6%)
2. Preeclampsia and eclampsia (14.9%)
3. Puerperal and post abortive sepsis (3.7%)
4. Other factors as: pulmonary embolism and DIC, medical and cardiac problems, anaesthesia complications (51.8%)

MMR significantly increase in developing countries due to lack of education, low socioeconomic standards , poor medical services , unawareness of the importance of ANC ,and lack of general hygiene.

---

4. Definition, causes & incidence of maternal mortality in Egypt (june 2011).

Definition:

Maternal deaths due to obstetrical causes(during pregnancy, delivery, or puerperium)

Maternal mortality rate: the number of maternal deaths due to obstetric related causes per100,000 deliveries per year.

Incidence:

52 / 100,000 deliveries in year 2013 statistics.

Causes:

See before

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5. Fetal death during pregnancy & labour: definition and causes.

Definition:

Fetal death during pregnancy (intrauterine) or during delivery (intrapartum) i.e. IUFD and IPFD.

Causes of IUFD:

1. Hypertensive disorders during pregnancy esp. PE and eclampsia.
2. Diabetes during pregnancy esp. GDM.
3. Placental insufficiency causing severe IUGR.
4. Rh incompatibility in sensitized mothers.
5. Congenital fetal anomalies (incompatible with life).
6. True knots of the cord or multiple tight loops around the neck.
7. Idiopathic causes with unexplained IUFD.

Causes of IPFD:

1. Intrapartum asphyxia; due to severe CPD and obstructed labor.
2. Intracranial hemorrhage.
3. Intrapartum sepsis due to prolonged PROM.
4. Birth trauma using forceps or ventouse instruments.

---

6. Complications of grand multipara (sep. 2011).

Maternal and fetal risks (increased liability to the following):

1. Medical disorders as anemia, chronic hypertension, PE, gestational DM etc...
2. Placenta previa, and accreta in cases of repeat CS
3. Malpresentations and malpositions due to pendulous abdomen and weak abdominal muscles
4. Uterine inertia and more liability to atonic post partum hemorrhage (PPH).
5. Obstructed labour and rupture of uterus due to
6. Oversized babies with malposition and malpresentations
7. Osteomalacia affecting bony pelvis.
8. Increased operative delivery (CS, forceps, and ventouse) due to all previous factors.

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7. The elderly primigravida; definition, maternal& fetal risk (june 2012).

Definition:

Whose age is 35 years or more during pregnancy or delivery.

Maternal and fetal risks (increased liability to the following):

1. Medical disorders during pregnancy as PE, eclampsia and GDM
2. Intrauterine growth restriction (IUGR), placental insufficiency, preterm labour(PTL).
3. Increased incidence of chromosomal abnormalities (trisomy21), and congenital malformations.
4. Dysfunctional labour, abnormal uterine action, rigid perineum.
5. Increased rate of CS to reassure foetal safety ,due to all previous conditions in addition to; pregnancy after infertility treatment as ovulation induction, IUI, or ICSI (precious pregnancy).

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8. Identification of high risk factors during antenatal care (sep. 2012).

Definition:

High risk pregnancy is a pregnancy complicated by a disease or disorders that may endanger the health of the mother, fetus or the newborn.

High risk pregnancy may be associated with:

1. *Personal factors:*

   Elderly primigravida, or above 40 years and grand multipara (5th pregnancy or more).
2. *Severe medical conditions affecting the mother:*

   Uncontrolled DM, cardiac disease (grades III and IV), artificial heart valves, systemic lupus erythematosis and sickle cell disease.
3. *Recurrent poor obstetrical outcomes such as:*

   Recurrent pregnancy loss (RPL), recurrent still birth(RSB), recurrent early rupture of membranes (ROM),and recurrent preterm labor (PTL).
4. *Obstetrical complications that require specialized care such as:*

   Severe preeclampsia, HELLP syndrome, severe intrauterine foetal growth restriction (IUGR), and multiple high risk factors.
5. *Conditions that may require invasive procedures for fetal diagnosis or therapy as:*

   Immune and non immune hydrops fetalis, and congenital anomalies or genetic disorders.

   - High risk pregnancy is identified by proper assessment through history, clinical examination, and special investigation of the mother during pre conceptional visit, the first antenatal visit or during the return antenatal visits.
   - Once identified, the mother should be transferred to a specialized centre ready for such high risk cases.

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9. The grand multipara; definition, maternal& fetal risks (june2015).

Definition:

Women who had 5 or more previous deliveries.

Risks:

See before

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10. Pregnant lady 24 years coming to antenatal clinic (Aug. 2009).

- **Name 4 warning symptoms.**
- **Name 4 items that should be available in everyday diet of this lady.**
- **Name 2 fetal risks of malnutrition.**
- **Name 5 maternal risk factors in antenatal assessment.**

Warning symptoms:

1. Gush of fluid
2. Bleeding
3. Blurring of vision
4. Persistent pain in the abdomen

A suitable daily diet in pregnancy should include:

400 ml of milk or its derivatives, one egg, fresh fruits and vegetables ,about 120 gm of red meat, fish, or liver

Fetal risks:

1. Low birth weight infants.
2. Higher incidence of rickets and anemia, in severe cases.

Maternal risk factors in antenatal assessment:

See before

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11. Definition, indications, technique of amniocentesis (june 2011).

Definition:

An amniotic fluid sample is obtained via atrans-abdominally introduced needle.

Indications:

Fetal cells obtained from amniotic fluid will be subjected to karyotyping, foetal sexing, DNA analysis using polymerase chain reaction PCR),and enzyme assay to achieve a final accurate diagnosis of several chromosomal, biochemical, and hereditary disorders.

Technique:

At 14-16 weeks gestation, a 22 gauge needle is introduced trans-abdominally, under local anaesthesia and ultrasonographic guidance, to aspirate 10-20 ml of amniotic fluid which will be available for culture and chromosomal analysis. Results are reproducible within 2-4 weeks.

---

12. Indications of prenatal diagnosis of fetal anomalies (sep. 2011).

1. Maternal age more than 35 years.
2. Administration of teratogenic drugs or chemicals, especially first trimester.
3. Exposure to teratogenic irradiation especially during early pregnancy.
4. Obstetric history of 2 or more previous successive spontaneous abortion.
5. Past history of previous affected fetus of the mother or very near family relatives.
6. One or both parents with a defined chromosomal anomaly.
7. Exposure to certain infections in the periconceptional period or during early pregnancy.

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13. A 35 year old primigravida of 6 weeks pregnancy. The patient is concerned about the high risk of Down syndrome. What are the different techniques used for prenatal diagnosis of Down syndrome in this case (2017).

Many tests could be used for diagnosis of Down syndrome:

1. First trimester ultra sound scan for nuchal translucency measurement & nasal bone hypoplasia with double marker screening test (DMT) at 11-13 weeks.
2. Second trimester maternal serum alpha feto protein (MsAFP) or triple marker test (TMT) at 14-16 weeks.
3. Second trimester fetal anatomy survey, chorionic villous sampling (CVS) & amniocentesis as final diagnostic tools in high risk cases at 12-16 weeks.

1. *Nuchal translucency measurement by ultra sound:*
   - It's measurement of fetal Nuchal fold at 11-13 weeks of gestation.
   - Thickness more than 3mm should call for more invasive investigations to exclude Down syndrome (DMT, TMT, CVS or amniocentesis)
2. *Double marker screening tests(DMT):*
   - It's combining of maternal serum hCG & pregnancy associated plasma protein A (PAPP-A) in one test performed in the first trimester (11-13 weeks)

- Down syndrome risk is high when the test shows high hCG and low PAPP-A.
- When combining the results of DMT and Nuchal translucency measurement by US, the predictive accuracy for the risk of Down syndrome increases to 85%. A high risk score calls for further TMT, CVS or amniocentesis.

3. *Triple marker test (TMT):*
    - It's combining of hCG, MsAFP and unconjucated estriol (UE3) in one test performed in the second trimester (14-16 weeks).
    - It yields good information about the risk of Down syndrome (in which hCG increases and both MsAFP & UE3 decrease).
    - A high risk score calls for further amniocentesis or CVS.
4. *Chorionic villous sampling (CVS):*
    - It entails obtaining chorionic villi as tissue sample to test it for chromosomal anomalies.
    - It's either done trans abdominal (at 12 weeks)
    - Or transvaginal (at 7-12 weeks).
    - It's done under sonographic guidance using 22 gauge needle to obtain 0.5 cc of chorionic villi.
5. *Amniocentesis:*
    - It's an amniotic fluid sample obtained via a trans abdominally introduced needle.
    - Fetal cells obtained from amniotic fluid are subjected to karyotyping.
    - Technique: see before.
6. *The second trimester detailed fetal anatomy survey:*

Usually performed at 20-24 weeks gestation for detection of important major fetal congenital anomalies as; neural tube defects, most of the skeletal, cardiac, renal, GIT and ventral& diaphragmatic hernia.

Induction of labor and abortion
Instrumental delivery

1. Indication of induction of labor (sep. 2008)

Whenever continuing pregnancy will harm the mother or the fetus:

1. Hypertensive disorders (PE I eclampsia).
2. Prolonged pregnancy (Postdate).
3. Compromised fetus (e.g. IUGR).
4. Maternal diabetes mellitus.
5. Rhesus iso-immunization.

---

2. Bishop score (sep. 2009)

Parameter/score	0	1	2	3
Position	Posterior	Central	Anterior	
Consistency	Firm	Intermediate	Soft	
Effacement	Formed 0-<30%	30- < 50%	50-80%	
Dilatation	Closed	1-2 cm	3-4 cm	> 5 cm
Head station	-3	-2	-1, 0	+1, +2

---

3. Complication of surgical vaginal evacuation (june 2012)

1. Cervical lacerations due to rapid or forcible dilatation.
2. Uterine perforation by sound, dilator, or ovum forceps (rare with suction cannula).
3. Introduction of infection.
4. Hemorrhage and shock: Mostly due to incomplete evacuation.
5. Neurogenic shock if the cervix is dilated with inadequate anesthesia.
6. Complications of general anesthesia.
7. Remote complications as cervical stenosis or incompetence, infertility and intrauterine synechiae.

4. You are asked to counsel a patient undergoing termination of first trimester pregnancy for complications (2017).

= *Complications of induction of abortion.*

1. Cervical lacerations due to rapid or forcible dilatation
2. Uterine perforation by sound, dilator, or ovum forceps (rare with suction cannula)
3. Introduction of infection
4. Haemorrhage & shock: Mostly due to incomplete evacuation.
5. Neurogenic shock if the cervix is dilated with in adequate anesthesia
6. Complications of general anesthesia.
7. Remote complications as cervical stenosis or incompetence, infertility & intrauterine synechiae.

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5. Methods of induction of labor (sep. 2013)

1. *Cervical ripening by Prostaglandins (PGLs):*

   Prostaglandins are effective in inducing cervical ripening (softening of cervical collagen fibers) which effectively results in success of labour induction. PGL E1 **(Misoprostol 25 µg);** vaginal tablet inserted into the posterior fornix is the most commonly used drug.

2. *Amniotomy (Artificial rupture of membranes):*
   - This is done to **initiate or augment** labour, or to allow a fetal scalp blood pH assay.
   - The cervix must be at least **6.0 cm** dilated to allow safely performing amniotomy.
   - Amniotomy appears to release a local secretion of **endogenous PGLs.**
   - It is done by passing a special hook along the fingers or by direct vision using a speculum to rupture the membranes overlying the presenting part, but care must be taken not to damage cervical or fetal tissues.
   - The color and quantity of the liquor removed should be noted.
   - Labour may not become established after amniotomy alone and it is usual to stimulate uterus further by **IV oxytocin** if contractions are inadequate.
3. *I.V. Oxytocin drip:*
   - Synthetic oxytocin by continuous IV drip is commonly used **after amniotomy** to stimulate uterine contractions.
   - I.V. oxytocin is best administered by **a suitable semi-automated infusion system** incorporating an accurate drop counter.
   - A solution of **2 units of syntocinon in 500 ml (lactated Ringer)** is used beginning at a dose of 1 mlU/min. (10-15 drops/min). This is increased by 1 mlU/min. every 15 minutes until satisfactory contractions are established.

---

6. Complications of forceps delivery (jun. 2006, sep. 2007)

1. *Maternal complications:*
   a. **<u>Maternal birth injuries:</u>**
      - Vaginal, perineal and cervical tears.
      - complete perinea! tear (Injury of rectum and anal sphincter)
      - Rupture of the uterus.

   b. **<u>Postpartum hemorrhage {PPH}:</u>**
      - Traumatic PPH, due to maternal birth injuries.

- Atonic PPH, if applied in cases of poor uterine contractions.

2. *Fetal complications:*

a. <u>Intracranial hemorrhage:</u>

Liable to occur with wrong forceps application, leading to marked fetal head compression and elongation of the mento-vertical diameter. This leads to tear of the vein of Gallen at the junction of the falx cerebri and tentorium cerebelli.

b. <u>Head & Skull injuries:</u>

- Skull fractures.
- Cephalohematoma.
- Facial nerve injury.
- Facial skin bruises and lacerations.

---

7. Complications of instrumental delivery (jun. 2007)

1. *Forceps vaginal delivery complications:*

See before.

2. *Complication of vacuum extractor:*

a. Fetal birth injuries including:
   - Cephalhematoma (bleeding into the scalp).
   - Scalp lacerations, (excessive force and repeated slipping of the cup).
   - Cerebral hemorrhage due to excessive negative pressure specially in preterm and asphyxiated fetus.

b. Maternal birth injuries lead to PPH including:
   - Vaginal and perineal lacerations.
   - Cervical lacerations (inclusion of cervical tissue within the cup).
   - Rarely rupture of the uterus.

---

8. Criteria which need to be fulfilled prior to forceps application (jun. 2010)

1. The cervix should be **fully dilated.**
2. The head should be **engaged.**
3. **No** cephalopelvic disproportion.
4. The **membranes** (forewater) should be **ruptured.**
5. Presence of **adequate uterine contractions.**
6. **Antisepsis** and **anesthesia.**
7. The bladder & rectum should be **evacuated.**

---

9. Advantages & complication of vacuum extractor (jun. 2010)

Advantages of the vacuum extractor over forceps:

1. Allows **easy and gentle traction** on the fetal head, due to limited force.
2. Promotes **flexion** and helps **internal rotation** of the fetal head in OP positions.
3. Less encroachment on maternal pelvic space, resulting **in less trauma** to maternal birth canal and less serious vaginal, cervical and perineal lacerations.

Complication of vacuum extractor:

See before.

10. Indications and perquisites of forceps application (jun. 2016)

Indications:

- **Prolonged second stage** of labour, when maternal exhaustion is eminent.
- **To shorten second stage** of labour, in maternal cardiac or hypertensive disorders.
- **Inadequate maternal expulsive forces**, as with the use of epidural analgesia.
- **Fetal distress** if the cervix is **fully dilated** with **engaged head.**
- **Prolapsed pulsating cord** when the cervix is fully dilated and engaged head.
- **Some malpositions & malpresentations**:
  a. Occipital posterior position after failure of spontaneous rotation.
  b. After coming head in breech, to promote flexion and avoid skull compression.

Prerequisites:

See before.

---

11. Contraindications of oxytocin in induction of labor.

1. Any absolute indication of CS as CPD, twins with non cephalic presentation, placenta previa, pelvic tumors, macrosomia, fetal distress,... etc
   "Discuss details; especially previous uterine scar (Risk for rupture uterus)"
2. Hypertonic uterus.
3. Fetal distress.
4. Severe maternal distress and not adequate time for induction of labor.

Obstetric procedures

1. Indications & advantages of episiotomy (june 2001)

Indications:

A. Maternal:

1. Short rigid perineum as in elderly primigravida.
2. Perineal scarring such as in previous perineal or pelvic floor repair.
3. Mild degree of pelvic outlet contractions.

B. Foetal:

1. Face to pubis delivery.
2. Vaginal breech delivery.
3. Shoulder dystocia.
4. Oversized foetus.
5. Forceps or ventouse delivery.
6. Preterm delivery.

Advantages:

1. Clean cut incision which is easy to repair compared to irregular vaginal lacerations.
2. Shorter second stage of labour, thus less foetal and maternal distress.
3. Reduce intracranial haemorrhage in PTL by decreasing compression-decompression effect.
4. Reduce damage to maternal pelvic floor predisposing to vaginal pro- lapse, stress incontinence and anorectal dysfunction.

---

2. Episiotomy (june 2006, 2007)

Definition:

It is an incision of the perineum during labour

Types:

1. **<u>Median (Midline) Episiotomy:</u>**
   Midline incision of the perineum directly backwards towards the anus
2. **<u>Medio-lateral Episiotomy:</u>**
   Directed posterolateral 45 towards the buttocks away from the anus

Indications:

See before.

Timing of the incision:

- Best time to perform episiotomy is when the head is visible during a contraction to a diameter of 3 to 4 cm (just before crowning)
- Before traction by forceps or vacuum extractor.

❖ Too early episiotomy causes bleeding from the gaping to be considerable

❖ Too late episiotomy is useless

Techniques of episiotomy:

1. **<u>Median type:</u>**
   - A vertical incision is made in the perineal body avoiding the foetal presenting part.
   - The incision starts at the forchette till approximately half the length of the perineal

body part.

- The incision should extend into the vagina approximately 2 to 3 cm.

2. **<u>Medio-lateral type:</u>**
   - Incision starts at the forchette at a 45 degree angle to the midline of the perineum.
   - The incision should extend into the vagina approximately 2 to 3 cm.
   - When the incision reaches the ischio-rectal fossa (with its fat) t is termed generous episiotomy.

Median episiotomy	***Medio-lateral episiotomy***
Extension to the anal sphincter and rectum is more common.	Extension to the anal sphincter and rectum is less common.
Easier to repair.	More difficult to repair.
Rare faulty healing.	Faulty healing is more common.
Less pain the perineum.	More pain in the perineum.
Dyspareunia is rare.	Dyspareunia is more common.
Less blood loss.	More blood loss.

Episiotomy repair:

1. Vaginal mucosa and sub mucosa are closed by chromic catgut 3/0 starting 1 cm beyond the visible apex till the hymeneal ring.
2. Interrupted chromic catgut sutures are used to approximate the muscles and fascia of deep and superficial perineal pouches.
3. Closure of the superficial fascia by continuous suture.
4. Closure of the skin by interrupted simple or mattress sutures or alternatively by subcuticular continuous stitches.

Advantages of episiotomy:

See before.

Complications of episiotomy:

1. Increased blood loss.
2. Extension to anal sphincter (median type) or ischiorectal fossa(mediolateral type)
3. Haematoma formation
4. Infection.
5. Perineal pain, dyspareunia and ugly scar.

Contraindications of episiotomy:

1. Adequate perineal size. Episiotomy is not routine even in primigravidae.
2. High suspicion of Caesarean delivery
3. Extensive perineal lesions such as condyloma accuminata or severe oedema.

---

3. Advantages of LSCS over USCS (june 2001, 2004, 2016)

1. Stronger scar: (it ruptures in 0.2%) due to:

- Better healing as the lower segment is less active in puerperium.
- Better coaptation of the edges (lower segment is thin).
- Less haematoma in the suture line (less vascularity).
- In subsequent pregnancies, erosion of the incision site by the chorionic villi is rare.

2. Less haemorrhage because

- The placental site is away from the operation area.

- Lower segment is thin and less vascular.

3. *Less abdominal distension and ileus:*
   Because the intestines are away and not manipulated during the operation.
4. *Less infection due to: better peritonization, and better healing.*
5. *Less adhesions and intestinal obstruction:*
   Wound is low and is covered by peritoneum.
6. *Less mortality rate.*

---

4. Indications of CS (june 2006, 2007)

1. *Previous CS*
   Is nowadays the most common indication.
2. *Faults in the Passages (maternal indications):*
   a. **Contracted pelvis:**
      Moderate and marked degrees (commonest cause in primigravidas)
   b. **Cephalo-pelvic disproportion (CPD)** usually detected after failed trial labour (TOL)
   c. **Cervical dystocia:**
      Leading to failed progress of labour and failed TOL.
   d. **Placenta Previa (PL PRV):**
      Total or partial central PL PRV, or marginal posterior PL PRV.
   e. **Severe vaginal stenosis, scarring, or masses** obstructing delivery.
   f. **Perineal and vulval lesions** as HPV infection forming large condylomata.
   g. **Pelvic tumours** such as low corporeal fibroid or ovarian tumours.
3. *Faults in the Passenger (foetal indications):*
   a. **Macrosomia:**
      Oversized foetus (the most common cause in multipara)
   b. **Malpresentations** as in:
      - Cephalic OP positions with failed long rotation (DTA, or persistent oblique OP)
      - Face DMP or with failed long rotation (DTA of face, or persistent oblique MP)
      - Persistent Brow presentation.
      - Breech presentation when trial vaginal delivery is contraindicated.
      - Transverse lie, when ECV fails or contraindicated
   c. **Foetal distress during 1st stage** of labour: due to:
      - Placental site bleeding: Placenta previa or accidental hemorrhage.
      - IUGR and post-maturity.
      - Prolapsed pulsating cord with a non fully dilated cervix.
      - Vasa-previa: to avoid severe foetal haemorrhage resulting in death.
      - Hypertonic uterine action, not responding to analgesics
      - Rh iso-immunization with severe allo-immune reaction.
4. *Maternal medical diseases (act my multiple mechanisms):*
   a. Hypertensive disorders; such as severe PE and Eclampsia: if termination of pregnancy is indicated while vaginal examination reveals a poor Bishop score.
   b. Diabetes mellitus: Because of macrosomia, placental insufficiency, and risks of lUFD.

5. *Recurrent unexplained IUFD:*
   An Elective C.S. is usually performed once 37 weeks reached
6. *After successful IVF procedure:*
   This is a relative indication as many women may prefer cs. after a long period of infertility and successful ICSI procedure to avoid hazards and stress associated with vaginal delivery.

---

5. Complications of CS (Maternal and fetal risks of repeat CS) (june 2010, sep 2011, 2016)

i. *Intra-operative:*
   1. Anaesthetic complications such as, cyanosis, cardiopulmonary complications.
   2. Primary haemorrhage: due to injury of inferior epigastric vessels, uterine vessels, uterine atony or DIC in concealed accidental haemorrhage.
   3. Injury to the bladder, colon or ureters.

ii. *Early post-operative (within 24h):*
   1. Reactionary haemorrhage: due to slipping of a ligature.
   2. Bladder or ureteric injuries.

iii. *Late post-operative:*
   1. Wound complications: infection, burst abdomen or incisional hernia
   2. Infections: generalized peritonitis, para metritis.
   3. GIT: Late diagnosis of intestinal injuries, paralytic ileus, acute gastric dilatation, and intestinal obstruction.
   4. Thrombo-embolic complications.
   5. Rupture scar in subsequent pregnancy.
   6. Abdominal adhesions leading to infertility or intestinal obstruction.

Complications of repeat CS:

i. **<u>Maternal:</u>**
   1. Placenta previa
   2. Placenta accreta
   3. Both → hysterectomy and PPhge
   4. Risk for rupture
   5. CS ectopic pregnancy
   6. Adhesions (higher risk for ureter/injury as in any pelvic operation and infertility)

ii. **<u>Fetal:</u>**

IUGR, IUFD, PTL (due to plprv and rupture uterus)

---

6. What are different types of CS & which is the better & why? (sep 2009)

Types of CS:

1. *Lower Segment (LSCS):*
   Using a transverse incision in the LUS (Munro Kerr's technique), most common type.
2. *Upper segment (USCS):*
   Using a longitudinal incision in the upper uterine segment (UUS), rarely indicated.
   LSCS is better (causes: see before).

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7. Indications of trial VD after CS (june 2010)

1. Non-persistent cause of previous CS as severe degrees of contracted pelvis and CPD.
2. No more than one previous LSCS.
3. Previous normal puerperium.
4. No tenderness over the CS scar.
5. Vertex presentation, with head engaged.
6. No associated other obstetric or medical complications.
7. N.B.: a previous normal vaginal delivery followed by C.S. improves the chances of a safe and successful VBAC.

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8. Prerequisites of VD after CS (june 2013).

See Q7

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9. Blood transfusion in obstetrics: Mention indications, complications and precautions. (june 2010)

Indications:

1. Haemorrhage: during pregnancy, CS, or postpartum.
2. Severe anaemia (given very slowly to avoid overloading the circulation or better give packed RBCs)
3. Puerperal sepsis and septic abortion: doses of fresh blood (to increase immunity).
4. Babies with severe Rh isoimmunisation:
    a. Exchange transfusion after birth.
    b. Intrauterine transfusion in selected cases.
5. Hypofibrinogenemia (DIC)

Precautions:

1. Cross matching.
2. Rate of transfusion= rate of blood loss.
3. Blood should not be very cold.
4. For every one litre of blood, give 10 cc calcium gluconate (to antidote blood citrate)
5. Continuous observation.
6. Monitoring CVP during transfusion in risky cases (anaemia, cardiac, PE cases, etc)

Complications:

1. Major anaphylactic reactions due to incompatibility leading to dyspnoea, cyanosis, rigors, lumbar pain, anuria and jaundice.
2. Febrile reactions due to presence of pyrogens as blood or apparatus. Stop transfusion and give antipyretics and anti histaminics.
3. Air embolism
4. Circulatory overloading especially in cases of anaemia
5. Transmission of diseases: AIDS and infective hepatitis.

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10. Enumerate the diagnostic value of US in assessment of the fetus in the third trimester of pregnancy (sep 2016)

1. Assessment of fetal wellbeing through biophysical profile (gross fetal movement, breathing movements, tone and amount of liquor and through Doppler study of placental and fetal blood vessels.
2. Diagnosis of multiple pregnancy.
3. Diagnosis of fetal lie, presentation and position (Determine mal position and malpresentations).
4. Estimation of fetal weight
5. Exclude IUFD
6. Determine placental location and placental separation (diagnosis of placenta previa and accidental hemorrhage).
7. Determine the amount of liquor around the fetus
8. Assessment of fetal lung maturity
9. Estimation of gestational age (although not accurate as first trimester US)

Final exam – June 2018

1. **Patient 32 years old and she had recurrent pregnancy loss more than 3 times;**
   - How do you evaluate and manage this case?

     "Evaluate" =

     History: امشي الشيت و ألف بذكاء

     Personal? Habits of medical importance, husband, occupation

     Family? Consanguineous, congenital anomalies

     Past? DM, Thyroid, HTN, history of cervical operations/ injuries (cervical incompetence)

     Menstrual? Irregular, hypomenorrhea (hypothyroidism or other hormonal imbalance), menorrhagia (bicornuate uterus, fibroid), premenstrual spotting (Luteal phase defect)

     Obstetric? *** Nature and timing of previous abortions: first trimester or 2nd, painful or painless, abortus macerated or not.

     Examination:

     General: HTN, signs of insulin resistance (DM), Thyroid

     Abdominal: Pelviabdominal swelling (Fibroid)

     Local : Cervix, Fibroid

     Investigations:

     US, Labs, HSG, Hystroscope.. write about causes.

     Management:

     TTT, both during and in-between pregnancies.
2. **Patient came to your clinic with short period of amenorrhea, nausea and vaginal spotting. Her beta subunit hCG is 2000 and vaginal ultrasound showed thick endometrium and absent gestational sac:**
   - What is the possible diagnosis?
   - How to confirm your diagnosis?
3. **List the different techniques used for prenatal diagnosis.**
4. **Write short account on the different lines of management of placental abruption**
5. **Primigravida 19 years old came to the ER with severe headache. Her blood pressure is 160/110, pulse 100 and abdominal ultrasound revealed the presence of a viable fetus 32 weeks.**
   - How you are going to manage this case?
   - What are complications that could occur in this case?
6. **Give an account on mechanism of delivery in occipito-posterior position.**
7. **Pregnant patient who is multigravida 34 weeks of gestation is suffering of generalized itching with slight yellowish discoloration of her eyes:**
   - What is the possible diagnosis of this case?
   - What is the differential diagnosis?

     DD: Jaundice during pregnancy & Itching during pregnancy

     DD= CL/P and Inv حاجة مميزة من

Jaundice:

Pregnancy specific: Preeclampsia, Hyperemesis Gravidarum, Acute Fatty Liver of Pregnancy (AFLP) , Intrahepatic Cholestasis of Pregnancy (IHCP)

Pregnancy associated (non-specific): Prehepatic as Hemolytic Anemia, Hepatic as Viral hepatitis, Posthepatic as Gallbladder stone.

Itching:

Pregnancy specific: Intrahepatic Cholestasis of Pregnancy, Herpes Gestationis, Pruritic urticarial papules and plaques of pregnancy (PUPPP)

Pregnancy associated (non-specific): General diseases as liver and renal failure, DM, Neurodermatitis, Autoimmune.. Dermatological diseases as scabies, psoriasis..

NB:

AFLP:

- Hypoglycaemia is a must (you can write whatever you know from Pediatrics in Liver cell failure.. "rapidly progressive jaundice, PT affected…)
- PE is found in 50% of patients
- 3rd trimester
- Termination is a must.

IHCP:

- Pruritis in palms and soles, with no visible lesions, usually with no jaundice.
- 2nd trimester
- Fetus: meconium and stillbirth! (TOP at 37 w)
- Elevated bile acids
- No hepatic sequele in mother

Herpes Gestationis:

- Has nothing to do with herpes! It is autoimmune, itching with skin lesions (vesicles and bullae)
- TTT with steroids.

PUPPP:

- Lesions as in name: urticarial papules and plaques causing pruritis.
- No fetal complications.

8. **A multipara, 38 weeks gestation came to the ER with vaginal bleeding. She was in a trial of home delivery with midwife for 12 hours, fetal heart sounds was absent by auscultation and there is no uterine contractions and fetal parts were felt under her skin:**
   - What is your possible diagnosis?
   - How to confirm your diagnosis and what is your management?
9. **A 34 years old patient Gravida 3 with no living she is 30 weeks gestation came to the ER with frequent uterine contractions, cervix was closed and ultrasound revealed healthy viable fetus:**
   - What are the measures to be taken to minimize the risk of prematurity?
10. **Give a short account on different methods of induction of labor.**

Final exam – August 2018

1. **A 40-year-old primipara suffering of mild vaginal bleeding in her 12th week of gestation. Beta subunit of hCG assay revealed 130000 mIU/ml and ultrasound scan showed heterogenous echo filling the uterus, giving a "snow storm appearance" in addition to bilateral adnexal cysts.**
   A. **What is the most possible diagnosis?**
   B. **What is the possible cause of adnexal cysts?**
   C. **How to manage this case?**
2. **A multiparous woman coming to the emergency room (ER) in her 29th gestational week suffering from moderate painless vaginal bleeding. There is no present or past history of medical or surgical maternal disorders, and fetal condition appears good.**
   A. **What is the most probable diagnosis of this lady?**
   B. **What are the maternal and fetal complications of this condition?**
3. **You are responsible for managing a 24-year-old primiparous woman in labour with face presentation. Describe your management.**
4. **A 29-week pregnant lady came to the obstetric clinic for antenatal care because she is diabetic.**
   A. **How can you evaluate her diabetic state?**
   B. **What are the lines of managing this lady?**
5. **A 27-year-old, 14-week pregnant female, coming to the antenatal clinic with a report showing one million bacteria/ml urine with no other abnormalities.**
   A. **What is the diagnosis of this woman? Mention most important complications.**
   B. **How can you manage such a case.**
6. **You were informed that a woman in the post-delivery ward has severe vaginal bleeding one hour after labor.**
   A. **What is the diagnosis of this woman?**
   B. **What are the possible causes?**
   C. **Enumerate the sequence of management steps for this condition?**
7. **A pregnant multipara attending the antenatal clinic was diagnosed with twin pregnancy. Enumerate the types of twin gestations. List the possible maternal and fetal complications.**
8. **A full-term multipara during 1st stage of labor with her cervix 4 cm dilated, rupture of membranes were suddenly encountered with prolapse of umbilical cord outside the vagina.**
   A. **What are your first measures of management of this case?**
   B. **How can you proceed in management of labor in this case?**
9. **A 30-weeks pregnant primigravida complaining from intermittent clear fluid leak per vagina.**
   A. **What are the possible causes for this complaint?**
   B. **How can you reach a definite diagnosis?**
   C. **How can you proceed in management of this case?**

10. **A 32-weeks pregnant primigravida came to the ER complaining of headache and drowsiness. Her feet were swollen. She mentioned that she feels constant dull pains in her upper abdomen.**
    A. **What are the diagnostic features of pre-eclampsia?**
    B. **What are the criteria of severity?**